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AMERICAN DYESTUFF REPORTER

VOLUME 1

1917

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AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

Circulating Wherever Dyestuffs are Used

Vol. I New York, October 8th, 1917 No. 1

THIS is the initial number of the American Dyestuff Reporter. Hereafter it will come weekly to your desk. It is published in the interests of consumers and manufacturers of dyestuffs, colors and allied chemicals. It aims to establish a closer association—a better understanding—among all elements in this newest of American industries. Its mission is worthy—with your help it can succeed.

When the resources of any industry are taxed as were those of American chemical manufacturers upon the suspension of German importations, when a sudden demand arises for products never before produced in this country, when all the essentials of manufacture—although present—are entirely undeveloped, when there is no precedent to follow and all progress must be achieved through painstaking and expensive experiment—when conditions of this sort exist, it is inevitable that tremendous confusion should result. And this confusion invariably affords opportunity for irresponsible and unprincipled operators to enrich themselves at the expense of the consumers, who, finding regular channels of supply closed to them, will, in desperation, "take a chance" on anything which promises even partial relief from their embarrassment.

This is exactly what happened in the dyestuff market three years ago. The exorbitant prices which were obtained for the relatively small stocks of German colors held in this country, the adulteration which was practised, the unscrupulous and oftentimes downright dishonest methods employed by a host of "war brokers," are matters of common experience. Little by little, however, this condition has righted itself. Consumers have learned to discriminate between these dealers who are trustworthy and those who are not; strongly financed concerns of serious purpose have gone systematically about the business of producing satisfactory colors in this country; a great deal of the "mystery" about dyestuffs has been eliminated and the industry is in a fair way to establish itself upon a sound and reputable basis.

There remains, however, a great deal to be accomplished before the American Dyestuff Industry can be said to have achieved a degree of perfection comparable to that enjoyed by the German industry in this country before the war American capital and American brains are constantly at work in an effort to accomplish this end but it is not to be expected that an industrial revolution can be consummated over night. In the meantime, the best interests of both consumers and manufacturers can be served if a spirit of trust, confidence and mutual helpfulness can be established between all parties at interest.

To foster such a spirit is the foremost aim of the American Dyestuff Reporter. We believe that a magazine which will represent only the best elements in the field of dyestuffs. colors and allied chemicals, and which will circulate wherever these products are consumed (including the textile, paper, leather, paint trades, etc.) can, if edited efficiently, cleanly and fearlessly, do a great deal toward promoting a closer friendship between consumer and manufacturer to the end that all elements of the trade shall be benefited thereby.

To accomplish this end we have set, for the AMERICAN DYESTUFF REPORTER, the following rules of conduct:

1. To print only information which is in every respect reliable.
2. To avoid misrepresentation and exaggeration in every form.
3. To avoid recommending or endorsing in our editorial columns the goods of any particular manufacturer.
4. To avoid advertising individuals or firms under the guise of special articles.
5. To expose and combat all questionable practises in the trade and those who practise them.
6. To accept advertising only from actual manufacturers of known reliability or from dealers whose financial resources and business records guarantee satisfactory performance of contracts made.
7. To furnish consumers with authentic reports of the latest developments in the field of dyestuffs, colors and allied chemicals.
8. To assist consumers to the extent of our ability in securing reliable and unbiased information upon any questions in regard to which they may consult us.

We believe that careful adherence to these precepts will gain for the AMERICAN DYESTUFF REPORTER the confidence and trust of the trade at large. We know that only if it enjoys such confidence can it hope to be helpful to the industry or profitable to its publishers.

We have already sounded the sentiment of representative consumers in the textile, paper, leather and paint trades by means of a circular letter sent out some time since—a copy of which, together with an analysis of the replies thereto, will be found elsewhere in these pages. Judging from the tone of these replies, we have no doubt that consumers generally will welcome the REPORTER and will extend us the co-operation so essential to its success. We have, moreover, been in close conference with what we esteem to be the most representative manufacturers and are assured of their guidance, counsel and support.

To those consumers who read this first issue of the REPORTER let us say that it is in the strictest sense *your* magazine. It is published *for* the consumer and, in so far as we can make it so, shall be directed *by* the consumer. Let us know what you need in a trade paper and we will endeavor to fill your wants. We earnestly solicit your advice and criticism.

We trust that you will make free use of our inquiry department which is described on another page. This department is conducted by a chemist of the highest reputation; who has under his direction one of the best equipped laboratories in New York City. It will be our pleasure to give careful consideration to any questions you may bring to our attention and to print the results of our investigations in the next succeeding issue of the REPORTER, where they may be of benefit not only to yourselves but also to others who may have encountered similar problems. All investigations, tests, etc. (except where unusually complicated or expensive) will be made free of charge.

NEW CHEMICAL FIRM WILL MAKE COAL-TAR PRODUCTS.

A new company organized in St. Louis is the Monsanto Chemical Works, which bids fair to be a very important factor in the manufacture of chemicals. Acquisition of approximately 100 acres of land in East St. Louis by the company signalizes the development of the coal tar and chemical industry in the West.

The Monsanto plant promises to be one of the largest chemical plants in the world, with thousands of employees. The original investment in buildings and grounds will reach $1,500,000. The company intends to manufacture coal-tar products, which include dyes, perfumes and oils, besides drugs.

It is predicted that this will be one of the greatest industries in this part of the country, as the probability is that large by-product plants will be built up around it.

These will probably include perfumes and flavors, such as oil of wintergreen, violet extract, vanilla extract, fluid extracts, benzole, aniline dyes, red ink, solvent naphtha, for dissolving rubber, waterproofiing fabrics and extracting oil from seeds; burning naphtha, for automobiles and gas; pyridine, for denaturing alcohol, phenols, carbolic acid, creolin, salicylic acid, naphthalene or tar camphor, an insecticide; photographic developers.

SO many technical articles have been written in the past on the subject of Dyestuffs that the actual purchaser of dyes, the man who really wants to know about the industry, finds his thoughts confused by technicalities. Articles that are written by a technical man for the perusal of others who are technically educated, do not enlighten the consumer along the proper lines. The purchaser wants to know conditions and the actual products which are now being placed upon the market.

At a time not so long since, the educational feature had to be considered when one would write upon the subject of coal-tar dyes, but that time is now passed.

To-day we face new conditions and now we must treat the subject upon other lines more in keeping with the moment.

The actual opinion of the consumer was not sought after in the past for reasons that were apparent then, but now that the plants have become systematized and are producing, the manufacturer of necessity turns to the purchasers.

Sometime ago it became apparent to the publishers of The Reporter that the good will of the actual consumer of dyestuffs and allied chemicals was of vital importance to the industry and was at that time neglected by the manufacturer, who was turning all of his energies to producing.

We had heard over and over again the official opinion of Washington upon the subject of necessary tariff protection but we had never asked the actual consumer for his views. We had read many articles which were utterly unintelligible to the layman and attributed our inability to comprehend to the lack of proper education. Later we found that many dyers themselves did not fully comprehend, for in many instances they were not versed in the technicalities of the trade. They were furnished regular shipments of certain dyestuffs and knew that one color by a certain process would produce such and such a result and here their knowledge ended.

With the irregularity of delivery which was necessary when plants were being erected, the dyers faced cnoditions which in many cases proved their limitations.

The result is that all interested must know more about actual conditions What the manufacturer can tell him regarding new products and the proper handling of same will be of much value. With this and the other reasons enumerated, in mind, we conceived the idea of appealing to the consumer direct and asking him certain questions, the answers to which would be of the utmost value.

We knew that the opinion of the textile trade was perhaps of the greatest value as it represents the largest purchasing power, but we realized further that our answers would be incomplete if they did not come from the consumers of dyestuffs, chemicals and colors in other fields as well.

The following letter was prepared and sent to about one thousand representative consumers in the textile, paper, paint, leather and printing ink fields. The letter was accompanied by a question blank which is also reproduced herewith:

> *Gentlemen—*
>
> It has been brought to our attention by several manufacturers of dyestuffs and chemicals that there is at the present time no periodical dealing exclusively with dyes and colors and the problems arising out of their use, and it has been suggested that such a magazine, if properly conducted, ought to fill a real need in the field. We have, therefore, determined to publish such a weekly paper, to be known as the American Dyestuff Reporter.
>
> The Reporter will be published under the direction of Mr. M. D. Reeser, who has for some time past edited the dyestuff and chemical department of the *Dry Goods Guide,* another of our publications. It is our aim to make the journal authoritative, newsy and interesting, and to have it written in plain, non-technical English, which will be readily comprehensible by the layman as well as the chemical engineer. We shall endeavor to give last-minute news of developments in the dye field and to advocate every movement designed to place the American dyestuff industry on a reputable and permanent basis.
>
> We realize that no venture of this sort can be made successful unless it commands the interest and respect of the people among whom it circulates. We are, therefore, writing this letter in the hope that you will refer it to that officer of your concern who supervises the dye department and that he will be sufficiently interested to give us some of the information requested on the enclosed blank and mail same to us in the enclosed envelope.
>
> Yours very truly,
>
> Black Publishing Company.

The question blank was as follows:

1. In discussing dyestuff matters, should articles be technical or should they be written in simple English readily comprehensible to the layman?
2. What ought we to advocate in regard to a protective tariff on American-made dyes?
3. Have you experienced difficulty with colors obtained through brokers or others who are not legitimate manufacturers?
4. Do you believe that greater uniformity, better value and better service, can be secured by dealing direct with manufacturers?
5. Have you reason to believe that there is "graft" in the handling of dyes between the actual manufacturer and the ultimate consumer?
6. If so, can you suggest a remedy which the Reporter might advocate?
7. Would you advise the conduct of an inquiry department wherein consumers might ask questions relative to available sources of supply, etc.?
8. What particular topics do you think ought to receive attention?

Within two weeks we had returned to this office *six hundred and eighty-three replies,* each one of which represented the personal opinion of an actual consumer. As will be seen the question blank contained a series of eight questions each of which had a particular bearing upon the subject of dyestuffs, their manufacture and use.

A summary of the answers to question No. 1 proved to us that there were over 650 actual purchasers of the products of American manufacturers, out of 683 who replied to our letter, who were anxious, in fact insistent, that the industry be protected. There were 27 who did not answer the question at all, perhaps because they personally did not feel qualified to do so, and only three who thought that protection was unnecessary. It so happened that these three represented the paper trade. This proves most conclusively that the consumer views with friendly attitude the efforts of the manufacturer and that he will help him in the attainment of the industry's permanency. We have repeatedly heard the manufacturer express the fear that the consumer thought of him only as a make-shift, and that as soon as importation was possible he would again turn to the former source of supply.

We hope that those manufacturers who are now looking to the future with apprehension will change these thoughts to happy anticipation, for they certainly need not fear that the reliable consumer will fail them.

The second question was aimed at the "war-broker" and unscrupulous dealer who was such a hindrance in obtaining proper colors, dyestuffs and chemicals.

Over 55 per cent. of the answers were to the effect that the small "war-broker" was decidedly a factor to be eliminated and a menace to the industry. There were many who bought only from the manufacturer direct and who advised this same practice by others who were having difficulty.

They agreed that the proper solution of this difficulty is the purchasing of your products direct from the manufacturer or his authorized agent.

We know that there are many difficulties in the way and it is for just this particular reason that we publish in another section a list of some American manufacturers and the products which they manufacture.

The questions relative to "graft" were answered very generally to the effect that the parties answering believed that "graft" existed on a large scale but that they had no first hand knowledge of it. Some few said that they had personally experienced trouble of this sort and some others said they did not believe any "graft" existed. The remedy suggested by nearly all was that purchasing of dyestuffs be done by members of the firm or other trusted executives.

Many of the letters went into some detail in expressing opinion as to conditions in the dyestuff field and we are reproducing herewith extracts from them which we think are decidedly interesting. For obvious reasons we do not give the names of the writers, but will be glad to furnish them to any individuals who are sufficiently interested to inquire.

As for the questions asked in your letter, our opinion is that you should have this magazine written in as simple a form as possible as we feel that you would defeat the object in view should you have the articles shown in technical form so that none but professional chemists would understand what was meant.

As for protective tariff on American-made dyes, we, of course, have not followed this matter as closely as you have, but our opinion is that you should endeavor to get your Government to protect you just as much as possible, that is, of course, within reason.

We have not had a great deal of difficulty in procuring colors through brokers and others, who are not manufacturers, but we think that possibly this is accounted for by the fact that we ordered very heavily right after war was declared in 1914, and we have not had to go out into the market up to the present to any great extent.

We have always felt that dealing direct with the manufacturer is always more profitable and satisfactory than through agents.

We have had no trouble whatever insofar as graft is concerned, although we have heard rumors of the existence of same.

We think in order to have your magagine complete that it would certainly be well for you to have an Inquiry Department, such as suggested in your letter, for in this way you keep up the interest of your subscribers, and who in a great many cases would appreciate the fact very much of your helping them out from time to time insofar as possible sources of supply are concerned.

The industry needs adequate protection as in the original Hill Bill. Personally, I am in favor of a working clause in our Patent Laws.

The industry should be urged to take up the immediate manufacture of better and faster dyes. The color manufacturers should be urged to form some kind of an association including all domestic manufacturers in order to assure sufficient cooperation to prevent needless duplication in research and in manufacturing.

The domestic manufacturers should be urged both to continue the productions of their present lines in sufficient quantities to satisfy the mills and at the same time to take up at once the development of the intermediates and finished products necessary for a line of dyestuffs which will be equal in all its properties to the ones formerly supplied from Germany.

Articles should be adapted neither to the layman nor to the ultra-technical. They ought to be such as to be readily understand and appreciated by the practical users, if it is your purpose to gain a circulation mainly among the mill people. The chemists in charge of dyestuff plants would be the people interested in the ultra-technical form of article, whereas most actual users of dyestuff do not care so much about the long words, but they do know how to get results with the colors, and the reading matter ought to be easily within their comprehension. If desired, a separate department might be operated for the information of those desiring to deal in technicalities.

We think that a protective tariff on American-made dyes, sufficient to encourage an adequate and permanent industry, should be enforced. This does not mean that a "hold-up" tariff ought to be put on, but one that would just be enough to give American makers a good fighting competitive chance.

We have not meddled much with brokers. We have examined hundreds of samples, but for the most part they appeared to be largely common salt, which we did not care to buy at war prices. Some brokers, however, have supplied us with most excellent stuff.

Obviously, in our opinion, a large mill particularly can deal more satisfactorily direct with the manufacturer. There is no apparent need why a middle man should come between. The true function of the middle man, in our opinion, is to handle such trade as is made up of small units, such as notions, etc., where nobody would ever buy enough of one thing to make it worth while, but still in the aggregate the output would be large. In a case where there are so few factories like dyestuff factories and comparatively so few users, there is no trouble either for the factory to find the consumer or the consumer to find the factory direct.

As human nature is the same everywhere, it is probable that there is some graft between some manufacturers and between some consumers, just the same as there is some graft in many city governments, etc. However, in our opinion, this is a disappearing feature of modern manufacturing, along with the disappearance of the old-style drummer who had an equipment of beery breath and rough jokes to sell his goods with. In these days of more education people know more about what they are doing, and there is not so much mystery about dyestuff, so that there is not so much room for "shenanigan" as formerly, and besides, business morality as a whole has improved.

We advise more education to the effect that honesty pays, and that dishonesty is ruinous to all parties concerned.

I would have no hard or fast rule regarding articles. I would aim in a gradual way, one at a time, to treat of each and every subject that might come up relating to dyestuff manufacture and dyestuff use that would be of interest either to the makers or users. At present the textile manufacturers would be mostly interested in learning of new colors being brought out, new shades obtainable from combination of old colors, improvement of fastness and brightness of colors by methods of dyeing, etc., etc. The manufacturers, of course, would always be interested in learning promptly of new plants where dyes would be required.

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Myron Drew Reeser, Managing Editor

It is the desire of the publishers that the Reporter shall reach the individual in each mill who is primarily concerned in the purchase of dyestuffs and allied chemicals. In so far as we have been able to secure the names of these individuals we have addressed the wrappers accordingly. In many instances, however, we have not been able to secure these names and the copies are sent simply in care of the concern, with the hope that they will be handed to the proper official. We shall appreciate greatly being advised of any inaccuracy in addressing. If there is any particular individual in your concern who will be more interested than another in receiving the Reporter, we shall be glad to see that the magazine is sent to him personally for a limited period without charge of any sort.

We realize that it is quite unreasonable to expect consumers to pay good money for a magazine with which they are totally unfamiliar. Hence we are circulating the Reporter for a limited period without charge, in the belief that it will soon make itself sufficiently desirable so that we may expect regularly paid subscriptions. Only by having a large and representative list of readers can we hope to be of any real service either to the manufacturers or consumers of dyestuffs, hence, in order to establish this list at once, we are making free distribution at present.

Our readers may wonder at the size of the Reporter and at its evident lack of ostentation. As for the size, it was made small in the hope that it would find its way into the pockets of its recipients rather than into the midst of the large pile of more bulky publications which adorns nearly every office of which we have knowledge. As for its modest appearance, this is partly a matter of size and partly one of expense—we could not afford to give *full and complete consumer circulation* to a magazine whose mechanical cost was ten or twelve cents per copy. It is our belief that our readers will be more concerned with what we have to say than with the colors in which it is printed, or the art with which adorns its pages.

We shall greatly appreciate receiving from our readers accounts of any underhanded or unscrupulous practices on the part of dealers in dyestuffs with which they may have first hand knowledge. We hear of many instances of such practices, but it is oftentimes difficult to "get the goods" on the offending dealer. Any cases of fraud or misrepresentation which can be substantiated will be given unsparing publicity in the pages of the Reporter. It is our first aim to assist reliable manufacturers in improving conditions in the trade, and we believe that much can be accomplished in this direction by "showing up" concerns which have been guilty of unethical methods.

It is the present intention of the publishers to refrain in most cases from giving the names of the authors who are responsible for articles appearing in the Reporter. We believe that a great deal of free advertising for various individuals and firms has been "put across" under the guise of special articles. Our readers can rest assured that any articles which appear in the Reporter are written by men thoroughly conversant with the subject of which they write. But we feel that more harm than good is likely to be done by giving names. Nevertheless we are open to conviction on this subject and shall be glad to have our readers express their views on this point.

The publishers have arranged with an independent chemist of wide reputation who has under his direction one of the best equipped laboratories in New York to handle all questions of a technical nature which come to us. His services are at the disposal of our readers free of charge insofar as the answering of inquiries is concerned, and he will also be glad to test samples, etc., without charge, except where the process is unusually tedious or expensive, in which case a charge covering the actual cost will be made. We trust that our readers will make full use of this service.

NOTES OF THE TRADE

The Third National Exposition of Chemical Industries was held at Grand Central Palace, New York, during the week of September 24th. It was in every respect the most interesting and most largely attended chemical exposition as yet held in this country. Over three hundred exhibitors in various lines were represented. Among the most interesting exhibits, without doubt, were those of the various dyestuff manufacturers. Many interesting addresses were delivered at the business sessions, among which, particularly, was that of William S. Culbertson, member of the United States Tariff Commission, which is reproduced elsewhere in this issue.

The Delta Chemical Co., New York, has been incorporated for $5,000. They will manufacture dyestuffs and chemicals.

The sales office of the Ernest Zobel Company, Inc., is now located at 38 Water Street, New York City. The company occupies two floors of the building as a general sales office. The works will remain at their present location in Brooklyn.

The Japanese Government has decided to grant permits for the exportation of aniline salts, alizarine dyes and black kryogene dyes, the output of these salts and dyes in Japan being in excess of home requirements. We learn also that licenses will be issued for certain other dyestuffs, if the samples thereof submitted and the certificates issued by the factory are found to be satisfactory by the competent authorities.

The Reade Manufacturing Company of Hoboken, N. J., have entered into an agreement with Dr. C. G. Richardson, chemist, to refine cobalt nickel and arsenical ore. The only other countries in which cobalt is being produced are Saxony and Canada.

The Reade Manufacturing Company has purchased a large, modern plant about 310x125, including eleven acres of ground, at New Market, N. J.

The new company will incorporate for a quarter of a million of dollars

CHEMISTRY AS A TARIFF PROBLEM

War Changes Viewpoint of Government Toward Protecting New Industry

Magical Development That Makes for Both Defensive and Economic Welfare Gives Us Something to Foster With a Spirit of Patriotism in Congress, in Business and in the Laboratory—The Lessons of Common Defense

By William S. Culbertson*

It was clear from the time of the organization of our commission in April that the chemical tariff presented complex problems of immediate importance which will become more important as the war progresses and as peace again comes. When we began work we had before us the legislation of Congress, which recognized the need of a new policy toward the coal tar dye industry. We saw how vitally the chemical industries are related to the successful prosecution of the war and we saw the war revolutionizing these industries—financially, technically and industrially. We also foresaw some of the competitive difficulties which they will have to face when normal times return, and seeing these things we determined to make—as it has never been made before—not a partial and inadequate, but a comprehensive study of our chemical industries in their relation to the tariff.

We recognize frankly the difficulties of our task. While we have employed some of the ablest experts in the country, and while neither time nor labor will be spared in exhausting published sources of information, we must have help from those directly in touch with our chemical problems. We are looking for co-operation from the chemists in our universities and in our industries, from those experienced in the importation of chemicals, from those who use the products of the chemical industry; above all, from the manufacturers.

Important questions are raised by the chemical products enumerated in the tariff act. War conditions, for instance, have cut off the raw material of the sulphuric acid industry—iron pyrites—which in normal times is imported in large quantities from Spain. A new kelp industry has developed since the war and produces as a by-product iodine. The war has stimulated the mining of magnesite in California and the manufacture of metallic magnesium, tending to make this country independent of foreign supplies.

The securing of an adequate supply of manganese is a serious war problem. Before the war monazite was shipped from Brazil to Germany where thorium nitrate and cerium nitrate were made from it. Those two substances were then shipped to the United States where they were used in making mantles. Now the monazite comes direct to the United States and the entire process is performed here.

Because of the removal of the duty, the imports of wood alcohol have been greatly increased under the present tariff law. Acetone, also produced by the wood distillation industry, is used in making explosives and its production has increased rapidly under the war demand. Oxalic acid came before the war in large quantities from abroad, chiefly from Germany. The cutting off of this supply has stimulated domestic production. A bleaching powder, ammonia and ammonia salts, the cyanides, sodium phosphate, the chromates, the nickel compounds, pigments—these and other products deserve more than enumeration.

I am very deeply impressed with the progress made in the electrochemical industries of this country. The ferro-alloys, made possible by the electric furnace, have revolutionized the steel industry; ferro-silicon, for example, is indispensable in munition manufacture; the efficiency of metal cutting tools is due to tungsten, while the addition of chromium, nickel, vanadium, or molybdenum confers special properties to steel, making it peculiarly suited to many special uses, including armor plate.

The production of aluminum is one of the greatest achievement of the electrochemical industries. They have also produced carborundum and alundum, which have almost eliminated from the market such natural abrasives as emery. These new abrasives are important factors in the metal working industries, such as the shoe machinery industry, where mechanical perfection is necessary in the making of interchangeable parts.

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* Member of the United States Tariff Commission. An address before the Exhibition of Chemical Industries recently.

Calcium carbide and artificial graphite are also achievements of the electric furnace, and the separation of common salt by electrolysis into caustic soda and chlorine gas is marvelous enough to excite the admiration of the most indifferent. Visiting these idustries at Niagara Falls is to visit the frontier of industrial research. In America, we should be proud of them. A number of them are peculiarly American in origin. To-day, however, they are confronted with a serious problem of obtaining sufficient water power—so necessary for their operation. Unless this problem is handled in statesmanlike way, our electrochemical industries will continue the migration already begun to Canada and Norway—both of which offer adequate, cheap water power.

We have in addition to the water power of Niagara great undeveloped powers in the south and west. According to recent statistics the maximum potential water horsepower in this country exceeds 60,000,000 and only 8.8 per cent. of it is developed. We have here not merely a problem of statesmanship for Congress but a real task for the statesman of business.

Before August, 1914, practically all the potash used in this country was purchased from the German Potash Syndicate. Geological conditions gave Germany a monopolistic control of this product. In 1910 the German Government by law limited the sales of the potash works up to the end of 1925 and fixed maximum domestic prices and minimum foreign prices.

After the outbreak of the war Germany added to the restrictions on ocean trade by placing an embargo on the export of potash. In this country the need of potash is to-day acute. Many efforts have been made to discover new sources of supply which can be developed commercially and production has been greatly stimulated; but it is still far short of the demand. The most promising sources of supply are brine lakes in Utah, Nebraska and California. High-grade potash is no longer available except in very limited amounts and the refining of low-grade potash presents many difficulties. When the German product again seeks a market in this country the new domestic projects will face severe competition.

Explosives and Dyestuffs

The control which Germany had over potash has its parallels in other raw materials used not only by the chemical but other industries. Platinum, for example, is a Russian monopoly. In our search for war materials we have had emphasized again our dependence on Chile for sodium nitrate, which has been the chief raw material in the production of nitric acid. The fear that this supply might be cut off and this country be left almost helpless in the production of explosives has turned our attention to the fixation of atmospheric nitrogen. Congress appropriated $20,000,000 for this new development. After an investigation, the committee recommended that nitric acid be obtained from the oxidation of ammonia and that a plant be erected.

This action is not only wise as a war measure but it is also a peace measure. As soon as the demand for explosives declines nitrogenous fertilizer can be produced. We have here an example—there are many others in the field of industrial chemistry—of an industry whose development may be viewed either as a measure of military or of economic preparedness. Such in fact is the way in which Germany views her coal tar dye industry; an important factor in national defense—and when war broke out in 1914 it was almost without change transferred from the production of dyes to the production of munitions.

No problem connected with the chemical tariff is more complex and important than the problem of coal tar dyes. Of the total consumption of artificial dyestuffs in the world in 1913, it is said that Germany produced 74 per cent. and the remainder was produced only with Germany's permission, because she controlled the raw materials known as "intermediates." Under the shelter of war conditions a new industry has sprung up among us, as if by magic, and it is destined to contest and overthrow the monopoly which the Germans have had of the world in dyes.

As is well known, the organization of cartels is encouraged in Germany and has been a leading factor in the advance of German chemical industries. In the dye industry the organization has been important and powerful. Unquestionably a large part of its success was due to the painstaking research of German chemists and the patents which they took out by the thousand. But financial control and business organization were also large factors in its supremacy. Before the war it was controlled by two communities of interests—the one known as the Badische group, the other as the Hochst-Cassella group. These two were closely coordinated and it was reported not long ago that a closer union had been entered into for the purpose of meeting effectively the conditions created by war, which have led to the establishment of competing industries in other countries, particularly the United States.

The dividends of four of the large German dye concerns from 1902 to 1911 ranged, it is reported, from 196 to 300 per cent. This financial strength must be kept in mind when we are considering the competition which our industries will be called upon to face after the war.

When the war broke out in August, 1914, we were using some 60,000,000 pounds of dyestuffs and 80 per cent. of them were imported. Not only that, but 80 per cent. of the "intermediates" used by the four or five domestic concerns making the remaining 20 per cent. of dyes was imported. The country was practically dependent on Germany for color. The war brought almost a panic among the users of dyes. Prices mounted to unprecedented heights and dire prophecies were made.

The American business man and chemist, however, attacked the situation in a truly American fashion. Within three years after we were cut off from German supply we had invested huge sums in plants for making crudes, intermediates and finished dyes. We were producing as large a quantity of dyes as were consumed here when the war started. We were receiving from abroad more money for exports of dyestuffs than we had normally paid out for dyestuffs imported. We still do not make a few highly manufactured lines as the alizarines and indanthrenes and only a portion of our requirements of indigo, but in most lines of large consumption we are now able to meet all demands and we will soon be producing the remaining lines of color.

We have a right to be proud of our achievement in this field. When it is recalled that there are over 900 distinct chemical products produced by the dyestuffs industry from some 300 intermediates, which themselves have first to be chemically produced from 10 crude products distilled from coal tar, the vastness of the problem set before this youngest of our industries is apparent. The rapidity of its progress has amazed the world. The record of its achievement reads like a fairy tale.

Competition After the War

New conditions have been brought about by the war in industry as well as in all the other phases of our national life. In the law of September 8, 1916, Congress has already said that the tariff is to be one of the means of preventing any attempt by a foreign competitor to destroy the new American dyestuffs industry. In revising the law of 1913, the plan was carried out, with a few exceptions, of raising the duty on intermediates from 10 per cent. ad valorem plus a special duty of 2½c. per pound and on finished dyes from either the free list to 30 per cent. ad valorem or from 30 per cent. ad valorem to 30 per cent. plus 5c. per pound. The duty of 2½c. per pound on intermediates and the duty of 5c. per pound on dyes are referred to as "special duties" and after five years are either to be abolished or reduced gradually over a subsequent period of five years. If a census show that after five years from the passage of the act 60 per cent. of the domestic consumption in intermediates and dyes is not produced in this country, the law provides that the special duties shall be abolished by Presidential proclamation.

Unfair competition was one of the methods employed by the German coal tar dye industry to maintain its international supremacy. Unfair acts in this and other lines were no doubt in the minds of the members of Congress when they enacted the unfair competition section of the law of September 8, 1916. By this law it is a criminal act to import any article systematically into the United States at a price substantially less than the actual market value abroad plus certain charges with the intention of destroying, injuring or preventing the establishment of an industry in the United States or of restraining or monopolizing the trade in the imported article.

In addition to this prohibition of unfair price cutting the law makes provision against the practice known as "full line forcing." Articles will be assessed with a double duty which are imported into this country under an agreement that any person shall not use, purchase or deal in or shall be restricted in his using, purchasing or dealing in the articles of any other person.

On account of the present abnormal conditions in international trade neither the Department of Justice nor the Treasury Department have been called upon to act upon any cases under these provisions of the law but they will become valued means of protecting the American chemical industries, particularly the dye industry. They might be made more effective by giving the Tariff Commission power to issue an order against persons who after investigation are found violating the law, requiring them to cease the unfair acts.

ORGANIZATION AND RESEARCH

Tariff laws and "dumping" legislation will not alone protect our chemical industries. The German industry attained success by years of research, by conservative financing, and by industrial coordination. In American industry these too must be important, in fact, dominant factors. While tariff and unfair competition laws will afford some protection in the domestic market, they afford no protection in export trade. After all, the best security for indutsry is in research laboratories, in the standardization of processes and products, and in efficient management and organization.

This is national service, because of our dependence on our chemical industries. Their products are in most cases basic; indispensable in processes and products of other industries. The metal working industries are dependent on the products of the electric furnace. The textiles must have dyes. We must have chemicals for the refining of sugar and petroleum, for the manufacture of glass, pottery, paper, paints and varnishes, rubber and cement. The tanning industry leans heavily on the chemical industries. Agriculture gets from this industry its fertilizers. Medicinal and pharmaceutical products, toilet preparations, photographic materials, motion picture films, cleaning compounds, baking powder—to mention these among the many which suggest themselves—reveal how closely chemistry comes to our daily life. In the problem of national defense it is a controlling factor. The factories that produce nitrogenous fertilizer in time of peace will yield us nitric acid in time of war; those producing intermediates and dyes can turn their machinery and workers to making explosives.

Hard steels for shells and armor-plate are achievements for the electro chemists. Our tariff problems in so far as they touch production, are also industrial problems. They must be considered as a part of the more comprehensive task of the progressive development of our national life. The war in which we are now engaged will inevitably affect radically American industry.

Modern war is in methods an economic as well as a military struggle. It is teaching us the value of co-operation. Society is learning its obligations to industry; industry is learning its obligations to society. We are relearning the old lesson that we cannot under modern social conditions live to ourselves. Things which once were private matters are now admitting by all to be matters of public concern. It is not strange that many men are now wondering whether or not social co-operation, if it is good for national defense, is not equally good for the progressive development of our economic life after the war.

Let us face these new problems with an open mind. Let us look forward not backward. Let us co-operate in bringing from the fire of sacrifice, through which the world is passing to-day, more efficient methods of production, juster means of distribution and a nation which shall continue to be a model of righteousness and international fair dealing.

IT is the intention of THE REPORTER to run each week lists such as appear below of colors and chemicals manufactured or sold by reputable concerns. We take every precaution possible to insure the accuracy of these lists but in many cases, of course, we must accept the word of the manufacturer or dealer that actually has for sale the goods listed. If any of our readers find that these lists are not in every respect authentic and reliable we shall greatly appreciate being told of the fact and we shall at once publish a retraction of the erroneous listing. It is not our intention to permit the pages of THE REPORTER to be used to gain credit for carrying a large and varied stock by any concern which does not actually have the goods for sale.

The lists given will be revised and amended from time to time. We suggest to our readers that they carefully *preserve these lists* as, in their complete form, they will give the consumer a full and accurate record of the sources of supply of all dyestuffs and allied chemicals manufactured or handled by reputable American houses.

ARNOLD, HOFFMAN & CO., INC.

61 Broadway, New York

Products of Mathieson Alkali Works, Inc.

Soda Ash, 58% Light Dense
Soda Caustic, Solid & Ground
Soda Crystal Carbonate
Soda Virginia Non-caking
Soda Bicarbonate
Bleaching Powder
Liquid Chlorine
Caustic Soda, Solid & Stocks
Castner Electrolytic Process
70% Test, 99½ Pure

Products of Nitrogen Products Co.

Sodium Ferrocyanide
Sodium Ferricyanide
Sodium Cyanide, C. P.

Products of Anchor Color & Gum Works

Starch
Dextrine
Gums
Softeners
Oils & Sizings
Special Products for Textiles
Pure Pigment Colors
Indigo
Cutch & Indigo Extracts
Natural Gums

THE CALCO CHEMICAL CO.

Woolworth Building, New York

INTERMEDIATES

Nitro Benzol, Commercial
Nitro Benzol, Redistilled (Oil of Myrbane)
Aniline Oil
Aniline Salt
Dimethylaniline
Dinitro Benzol
Metaphenylenediamine
Beta Naphthol
Sulphanilic Acid
Naphthionic Acid
Nitro Zylol
Xylidine
Paranitraniline

DYESTUFFS

Acid Colors

Scarlet 2R
Scarlet 2RX
Orange II
Bordeaux B
Crimson Y
Bordeaux 2BX
Tartrazine

Chrome Colors

Yellow
Orange
Green
Brown

Basic Colors

Methylene Blue
Methyl Violet

Direct Colors

Orange R
Maroon Red
Red
Chrysamine
Violet R

Lake Colors

Lake Scarlet 2R
Lake Scarlet 2RX
Acid Orange
Bordeaux B
Methylene Blue
Methyl Violet

DICKS, DAVID CO.

302 Broadway, New York

Methyl Violet IS
Methyl Violet 4BX
Methyl Violet 6B
Sulphur Brown
Sulphur Black
Direct Blue
Direct Green
Alizarin Yellow
Mikado Yellow
Stilbene Yellow
Fuchsine
Magenta
Kahki
Soluble Water Blue

ZOBEL COLOR WORKS

2nd Ave., and 9th St., Brooklyn, N. Y.

Methyl Violet B
Methyl Violet 2B
Methyl Violet 3B
Methyl Violet 4B
Methyl Violet 4B Ex.
Methyl Violet 5B
Methyl Violet 6B
Methyl Violet 6B Ex.
Methyl Violet Base
Methyl Violet Base Conc.
Methyl Violet Oil Sol., Lumps
Methylene Blue
Malachite Green
Fuchsine (Magenta)
Bismarck Brown R
Bismarck Brown Y
Chrysoidin
Indigotine
Indigo Paste
Indigo Extract
Purple Lake A
Purple Lake B
Purple Lake BB
Purple Lake No. 100
Scarlet Lake No. 40
Scarlet Lake No. 110
Permanent Red No. 1
Permanent Red No. 2
Permanent Red No. 3
Permanent Red No. 4
Green Lake No. 20
Blue Lake No. 50
Blue Lake No. 120
Persian Orange No. 60
Persian Orange No. 70
Persian Orange No. 90
Orange Lake No. 30
Scarlet Pulp
Cutch Extract
Logwood Extract
Solid Logwood
Hematine Extract
Hematine Crystals
Nigrosine, Jet, Base
Nigrosine, Jet, Oil Sol. Lumps, "R"
Nigrosine, Jet, Oil Sol. Lumps, "C"
Nigrosine, Jet, Water Sol. "R"
Nigrosine, Jet, Water Sol. "C"
Nigrosine, Jet, Spirit Sol. "R"
Nigrosine, Jet, Spirit Sol. "C"
Nigrosine, Blue, Base
Nigrosine, Blue, Oil Sol. Lumps, "R"
Nigrosine, Blue, Oil Sol. Lumps, "C"
Nigrosine, Blue, Water Sol. "R"
Nigrosine, Blue, Water Sol. "C"
Nigrosine, Blue, Spirit Sol. "R"
Nigrosine, Blue, Spirit Sol. "C"
Induline Base
Induline Oil Sol. Lumps
Induline Water Sol. "R"
Induline Water Sol. "C"
Induline Spirit Sol. "R"
Induline Spirit Sol. "C"
Silk Blue S
Congo Red
Sulphur Black

IMPERIAL COLOR WORKS, INC.

1328 Broadway, New York

Prussian Blues
Milori Blues
Bronze Blues
Chrome Yellows
Chrome Greens
Para Toners and Lakes
Toluidine Toners and Lakes
Scarlet Lakes
Violet Lakes
Blue Lakes
Green Lakes
Red Lakes
Logwood Extract
Logwood Crystals
Hematine Crystals
Hematine Extract
Fustic Extract
Fustic Crystals
Hypermic
Wool and Leather Yellows

BINNEY & SMITH CO.

81 Fulton St., New York

Products of The Meth-o-lene Co., Inc.

Methylene Blue
Methylene Green
Methyl Violet 2B

AMERICAN
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DYESTUFFS, COLORS and ALLIED CHEMICALS
Circulating Wherever Dyestuffs Are Used

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THE AMERICAN DYE INDUSTRY
ITS ESTABLISHMENT AND PROTECTION

SO much has been written during the past two years on the dye situation, its influence on various industries more or less dependent upon a regular and reliable supply of suitable dyes and artificial coloring matters, and the desirability of establishing the manufacture of at least the more important and more largely used of these very necessary commodities in this country, that, in undertaking to contribute more, one feels some hesitancy, as such notes must contain more or less repetition of what has been previously brought before the notice of interested parties. However, the subject is one of such great importance to the national welfare that the writer ventures to essay a few comments which may, he trusts, be of some slight interest.

The subject may, for convenience of handling, be considered from the points of view of the various factors bearing upon the successful establishment and conduct of the industry, and the many benefits directly and indirectly accruing to a nation possessing such businesses in a flourishing condition. We will therefore attempt an analysis under headings as follows:

The supply of necessary raw materials.

Machinery and plant.

The scientific and technical talent available for efficient and practical direction of the manufacturing processes and for research and investigation.

The difficulties inherent to the business as compared with foreign establishments.

RAW MATERIALS PLENTIFUL

OF the first it has been stated again and again that this country is producing quantities of the necessary raw materials many times greater than is required to fully supply all demands in normal times. This is true of some of the principal raw materials such as benzol, toluol, kylol and naphthaline. Others, such as anthracene, are not at present produced in large quantities as there is little or no demand for them. But that is only a question of demand, and the domestic tar distillers can no doubt meet conditions as they arise. Hence the question of the supply of raw materials may be dismissed—it will never stand in the way of success.

Machinery and plant, the next items to be considered, are more or less in the same category as raw materials. There is much apparatus necessary for the conduct of certain chemical operations of a special nature which have never been manufactured in this country. It is true that the large engineering and foundry companies have much to develop before they are able to produce entirely satisfactory products of this nature, but already they have shown a most commendable readiness to co-operate with users of such apparatus, and the final solution of these problems may safely be left in their hands.

With regard to the supply of technical and scientific men, who have had experience in this line of endeavor, the country is not as well supplied as it is with raw materials and plants. Of the very many extremely able, highly trained students and specialists, few have had experience in this particular branch of sci-

ence, which, as is well known, has been for many years almost entirely in the hands of German manufacturers. Moreover, very little literature of exact nature has ever been published on this subject and, as there is probably no manufacturing process more dependent upon minor details than the one under consideration, it stands to reason that an enormous amount of preliminary research work must be done before even the most ordinary of the various dyes can be made of a quality and at a price to compare favorably with those made by the foreign manufacturers, with their years of experience and specialization in this line.

The writer has every confidence in the ability of Americans to solve this problem, but it will readily be seen that to do so will involve considerable time and large monetary outlay, for success in a project of this kind is obtained only by experience, the gaining of which is often very costly. As one manufacturer puts it, there are many "tricks of the trade" to be learned and nothing but time and patience will teach them. This is one of the reasons why it is necessary to guard the manufacturer who is struggling to overcome these initial difficulties against ruthless competition such as he is likely to meet in the future.

The difficulties inherent in the dye business are partially covered in the foregoing remarks, but aside from them there are many common to other industries as well, such as higher cost of labor, rent, plant and supplies. Above all, is the fact that the cost of the majority, if not all, of the large foreign plants has already been "charged off" out of profits of the past, while an American manufacturer now entering the field has the burden of his invested capital to bear, making his problem a still harder one to solve.

Attention has often been directed by other writers to the direct bearing of this subject on the question of national defense. In view of this it is only necessary to draw attention to the fact that every complete "intermediate" factory is potentially a factory suited at short notice to produce in large quantities the powerful explosives which the present war has shown to be absolutely essential not only to offensive but also to defensive operations. The preponderance in this line which Germany had at the commencement of war gave her a tremendous advantage which it has cost her enemies untold losses in men and money to withstand until they were able to create similar factories for their own use.

Dye Industry a National Necessity

THE foregoing outline is surely sufficient to indicate the importance of the subject to the country at large. It is no exaggeration to say that the industry is so important that a country not possessing a well developed and efficient share of it is *not independent.* It has been contended that to provide protection sufficient to enable the domestic manufacturers to compete with the foreign factories would enable them to keep up the selling prices at exorbitant figures, but that is not a reasonable assumption. Domestic competition is keen and will become keener as the supply becomes equal to the demand, the consumer will get his dyes at the lowest figure compatible with the cost of American manufacture. Are not other businesses a proof of this? Where, for instance, can a better or cheaper automobile be bought, even in normal times, than in this country, and yet, as everybody knows, the proportion of imported automobiles in this country is, and has been, negligible.

It has been proposed, in lieu of further protection, to enact into law an "anti-dumping" measure to prevent foreign manufacturers from selling their products, especially their surplus products, in this market at too low a figure. It is extremely doubtful if such a course would be successful. In the first place, this country is not altogether innocent of such practice, and the passage, or at least the attempted enforcement of any such law against a foreign nation, would be sure to give rise to diplomatic controversy without end. Then again, it has not been a wholesale "dumping" or price-cutting campaign that American manufacturers have had to complain of, but rather a systematic underselling of those products in which they were particularly interested to their own particular customers. The profits so sacrificed

(Continued on page 13)

INQUIRY DEPARTMENT

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordinly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

In our first issue we mentioned our intention of establishing this department and our offer has already brought two inquiries which seem to be of sufficient interest to all of our readers to warrant publication. For economy of space we will omit the customary practice of printing the irrelevant parts of the letter.

Question—Can you inform me how I can obtain a red stain soluble in alcohol which will be impervious to water. I wish to use it in refinishing leather goods and will use a small amount of shellac in the liquid?

Answer—There are a few oil soluble reds of American manufacture on the market and these are generally soluble in alcohol but in case you cannot obtain just what you want you can take a strong solution of Fast Red A in water and add just enough of a basic red like Fuchsine or Safranine to exactly precipitate the acid color. The end point may be determined by dropping a drop of the liquid on filter paper, at the beginning the Fast Red will form a ring outside the sediment or precipitate and if too much basic color is present it will form the ring but when the precipitation is sharp the precipitate will have only clear water surrounding it. The precipitate is collected and when drained free of water will dissolve in alcohol and not be soluble in water. Blue shades can be made by using Methyl Violet with the basic red and yellower shades by using Chrysoidine. This method was used successfully five years ago and can easily be repeated with the dyes now available.

Question—How is Nigrosine tested by dyeing on wool? The best results we have been able to obtain are all thin greys and blues which wash out and rub.

Answer—A wool dyeing is worthless as a test for the strength of Nigrosine because the dye has little affinity for the fibre while any acid dyes added for shading purposes have their full affinity. Tests may be made by colorimetric methods or a small batch of paper pulp colored and fixed with alum and made into a sheet will give a comparison. Chrome tanned leather may also be dyed but unless the samples are finished under identical conditions the results will be misleading.

THE INDUSTRY AS THE CONSUMER SEES IT

We believe that America is able to make successfully anything that can be made abroad. Also, therefore, that our facilities are as good as any government on earth.

We want America to develop all branches of industry to compare favorably, and if possible to discount her foreign neighbors. Then in case of war or other disasters, such as we have been obliged to go through or may be in future, we will be *"prepared."* . .

No one can forsee what might happen in future years, therefore we should be awake and watchful in every possible latitude, so as not to be taken unawares and suffer thereby.

Present tariff rate is fair, but should include all dyestuffs, and all other coal tar products. Foreigners procuring patents in United States America should be compelled to manufacture products in this country.

In England it has always been considered proper for dyers and finishers to get gifts from the different dye and drug manufacturers. In America, all concerns who employ a chemist are free from this sort of thing. I do not believe that any of the *reputable* dye houses would countenance any crooked work.

Go gunning for prohibitive embargo until such time as American industry is on its feet. Also a working clause in our patent laws that will insure all steps of manufacture being conducted on American soil.

I think the bogie of the mystery of dyestuffs should be dispelled. The majority of manufacturers are afraid to go after the graft proposition because the technical features that infest the whole field of dyestuffs make them feel in the dark.

We believe the articles should be written in simple English, as they will then be understood by the technical man and the layman.

With reference to protective tariff we should have the tariff high enough to protect our industries and what it should be, should be ascertained carefully, and the tariff fixed on this basis so that after the end of the war our Americna factories will be able to compete with foreign producers.

We have not bought any color through brokers.

We believe in dealing direct with the manufacturer when the quantities are large enough to warrant the business being a direct manufacturer's business. We have no reason to believe that there is any graft in the handling of dyes between the actual manufacturers and the ultimate consumer, although there has been in the past few years a large amount of speculation, but to our knowledge the legitimate manufacturers have not insisted on any of their products being bought at fabulous prices through any broker or dealer.

Get all the articles on American dyes that you can and boost home industries, and this one in particular, it is a new industry, and the experience of the last two years has taught us a lesson in regard to dyestuffs that we shall be a long time in forgetting.

It will take a long time to perfect the so-called German dyes in the United States, and we shall have to be patient and for a time we may have to put up with the dyes as they are, but I am informed that the new companies who are manufacturing dyes are adding new dyes almost every month to the list they have already made.

The idea seems to prevail (and newspaper publications have repeatedly circulated it) that large quantities of dyes are being made in this country and that we are *now* practically independent of Germany.

Our information is that only a few of the high class colors are to be had, and these at very high prices. Sulphur black is, of course, plentiful, though still very high priced. There is need of good shades of sulphur blues, red, yellow, heliotrope, green, and many other colors. To inform the trade accurately as to what has been or is being done and by whom, so that actual supplies can be had, will render an important and acceptable service.

Also every effort should be made to induce the American manufacturer of colors to make their prices reasonable and be content with a fair margin of profit, instead of "hogging it" as many of them have been doing.

IN BEHALF OF OUR INFANT INDUSTRY

IT is unfortunate that the ultimate consumer cannot be shown the true state of the American Aniline Color industry for we then would be spared the humiliation of hearing the over-zealous but misinformed salesperson telling the prospective customer why the store cannot guarantee the colors. We realize that no American manufacturers have yet produced Vat colors and we also know as a fact that their use before the war was confined to a rather restricted class of goods, but why the lack of these colors should be taken as an excuse for an apology for the really excellent dyes that are being made in this country from domestic materials no one but the salesperson and his employer can understand.

The fact cannot be too emphatically impressed upon the public that when a domestic firm produces a dye of a definite variety it has identically the properties of that dye wherever it may have been produced before. Even if the purity of the color is below par on account of hasty preparation and meager equipment it is the shade that suffers rather than the fastness. The products of the responsible firms that are now manufacturing colors are generally above criticism. We have seen Victoria Blue, Nigrosine, Sulphur Black, Induline, Methylene Blue and many other colors that surpass in many ways anything that ever came from either Germany or Switzerland.

Just as in mechanics or any other constructive art time alone can give the skill and finesse that is not to be had in any other way, so we may justly expect that the next few years will bring us to a height of attainment of which we may well be proud—providing The Ways and Means Committee of Congress does not allow the Pro-German element, that has exerted so much influence in the past, to balk all efforts to give the industry adequate protection.

Shall we answer the question "Why are the new American dyes not fast?" Generally, because the right dyes are not being used for the right purposes. The Khaki of our troops used to be dyed with either Sulphur colors or the combination of metaillic oxides still used for tents and awnings. Some contractors thinking only of their own profits used combination of Chrysamine, Direct Brown and Direct Black and the appearance after a little wear has caused much adverse comment as to American dyes in general. Sulphur Black on cotton hosiery cannot be surpassed for fastness and has never been a scarcity except through holding and speculation on the part of consumers, yet many used a Direct Black without after-treatment in thin slaty shades. Before the war the same Direct Black was used on half-silk hose with a Formaldehyde after-treatment and held its own beside Developed Blacks. Artificial silk hosiery and sweaters are to be seen in brilliant shades made with the whole gaudy range of basic dyes; they are unsatisfactory in fastness—will someone tell us how German dyes would have been better?

During the coming week a dealer has promised the writer to produce the first lot of domestic Patent Blue, which will mark a notable point in our progress. Up to this time while the simpler dyes were being perfected we were always reminded by our critics that Patent Blue and Rhodamine must be looked on as unattainable for American factories. Now, let some one hurry with the Rhodamine and put the Rhodamine tinted Dextrine where it belongs.

We almost omitted saying that a domestic Primuline has been produced by several makers, one sample at least being the equal of the old Badische type Primuline A Conc. That opens another discussion-types, shall we refer to our products as being "as good as the German so and so" or shall we some day have American standards for our products?

There are to-day many dyes of a uniform quality which are often mentioned by competing firms for purposes of comparison, yet no organized effort has been made toward standardizing the output of the various factories. The time is past when any small factory can send the consumer what it pleases and feel that the need for the dye is so acute that the user will not dare to complain for fear he will not get any more. The large manufacturers have their own standards and aim to make deliveries in the closest possible accord with sample. If they fail in this at all times the reason is generally that the output is taken up too rapidly to permit aggregating and averaging the batches, a very necessary condition for uniformity. Many of the smaller factories are forced to buy their materials in relatively small lots and cannot always get a steady supply from one source, in such cases unsuspected by-products may be present and alter the shade of the finished product and as none of the raw materials are strictly chemically pure they are neither in a position to purify them nor insist on the grade they should have. Time will adjust these inconveniences but if we have a definite standard for each color the goods may be sold so the consumer will at least know what he is using.

A Dyehouse Superintendent Gives a Suggestion on Dissolving Dyestuffs

In dissolving dyestuffs, two kinds of insolubility are encountered, the dye itself may be difficult to dissolve or else there is an insoluble residue that requires special treatment. When the dye itself gives trouble always stir it to a paste with water first, then add hot water and boil, if necessary. A residue may either be due to an impurity or else to Lime and Magnesia in the water. Basic dyes are imprived by adding Acetic Acid. Direct dyes are always benefitted by Phosphate of Soda. Of the acid dyes the most troublesome are Fast Red and Azo Yellow. Plenty of boiling hot water is the best for them. When a basic dye has been reduced with salt or glauber salt trouble may always be expected.

SULPHUR KHAKI

For the past two months or so there has been an increased demand for sulphur khaki. The trouble in general with the dyestuff concerns who are contemplating the manufacture of this particular color is that there are so many different shades that to determine what color to offer is difficult. Sulphur khakis have run from a very yellowish-brown to a greenish-black.

Sulphur khakis are very complex mixtures which cause unevenness, streakiness and other objectionable properties. It has been found that several sulphur khakis were made from the base of sulphur brown which was nothing but fused sawdust and sodium sulphide combination.

Of late there have appeared on the market several sulphur khakis of true coal-tar base character which possess the same properties as the German sulphur colors which were obtainable previous to the war.

This new khaki has superceded the old mixtures which are now gradually being eliminated from the market. There is a brisk demand for these new khakis which have met with the Government's approval.

Sulphur khakis that have been after-treated with ¼ per cent bluestone and ¼ per cent bichromate of soda and a slight addition of Acetic Acid have been found to stand the washing and soaping tests very satisfactorily. Also they are much faster to light.

The Gates Aniline and Chemical Company, of Cincinnati, Ohio, has increased its capital from $10,000 to $100,000.

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A GET-TOGETHER MOVEMENT OF SMALL MANUFACTURERS

For the good of all concerned in the welfare of the industry there should exist a closer spirit of co-operation between the small manufacturers of dyestuffs and allied products.

The lack of get-together spirit is indeed lamentable and in many cases it is due to nothing more than jealousy.

The fear that one particular company might give out information which would benefit another has led to the consumer being kept in the dark regarding actual accomplishments.

Perhaps the small manufacturer was right in this when conditions warranted but now that the consumer is desirous of purchasing his colors direct and the small war-broker is being eliminated, the consumer should be told more about actual conditions.

There seems to be a willingness upon the part of the larger manufacturer to give this information, for they realize by experience that secretiveness does not breed a spirit of consumer good-will.

We all realize fully the difficulties in the way of a get-together movement and suggestions from all sources should prove of value to those manufacturers who really do want to see the industry established on a permanent basis.

A SUGGESTION

If instead of each small manufacturer sending out a number of inexperienced men who take up the valuable time of the consumer, they would pool their interests together and send out men who know the industry by experience, the consumer would be saved much annoyance.

If they would establish a sales organization on a mutual co-operative basis it would enable them to eliminate many difficulties. It would help in the discouragement of secretiveness and would result in the saving of valuable time of both manufacturer and consumer.

As its is now a representative of a small manufacturer with difficulty, gains admission into the presence of the man who actually does the purchasing and then has only three or four colors to offer him.

The chances are that the consumer does not happen to be interested in his particular colors and the interview simply means the loss of valuable time to a particularly busy man.

The discouraging part is that this happens many times in the day, and to the consumer this must indeed be particularly trying. The usual result is that the representative is informed by the office that they are not interested at present.

Can one blame the consumer for wanting to deal with a well organized company with representatives who can offer a more complete line?

The success of the established manufacturers has been due to a sales force composed of capable men who make regular systematic calls and have something to sell when they do call.

The consumer will occasionally need information regarding processes adaptable to a particular color and the salesman should be able to talk intelligently.

SYSTEM

We cannot sell dyestuffs to-day by averaging so and so many calls each week.

We cannot build up a permanent business unless we realize that the time of the consumer is valuable and that he will greatly appreciate a few moments in the day in which to attend to his particular duties.

One of the most important factors in the industry's success is system.

Systematic manufacture—systematic purchasing and systematic delivery will help, but success will not be attained until the ready co-operation of the consumer is gained.

The small manufacturers should change their methods as conditions have changed and when they do take up the time of a consumer have something to sell.

The only way this can be accomplished is the establishment of a sales organization as outlined, and this can and should be done. The consumer can be of much assistance in bringing about the acceptance of such a plan, and an appeal by them to the manufacturers will result in its accomplishment.

Co-operation for Competition

We are passing through a critical period and conditions in the industry will not improve when peace is declared. Competition is good for trade but unless there is a decided change in the attitude of the small manufacturer he will stand a mighty poor show.

Protective tariff is necessary and the country must see a movement on foot to permanently establish the industry, by manufacturer co-operation, before we can expect much in the way of protection. When each manufacturer is trying to undersell the other and in the mean time laying himself open to over-production, we cannot hope to compete with those other countries which are supported by a paternal government.

Let us then as representatives of the greatest government, stand together in commercial unity and in the building of the industry, work mainly for the industry's success and not individual gain.

By the permanent establishment of the industry success will be achieved by the individuals interested.

NOTES OF THE TRADE

It is reported that the Butterworth Judson Co., of Newark, is planning to erect a new one-story factory addition at a cost of about $32,000.

Lloyd Chemical Works, Inc., of Belleville, N. J., has been incorporated with $10,000 capital to manufacture dyes and chemicals.

With a few exceptions the market for coal-tar dyes and intermediates is notably firmer.

This perhaps is due partly to the extensive orders placed by the United States Government for upwards of 13,000,000 pounds of picric acid.

(*Continued on page* 14)

EXPANSION OF DYESTUFF INDUSTRY IN THE UNITED STATES

IN reproducing the following article we digress somewhat from our original policy of publishing only news of the latest moment.

We were influenced in making an exception in this instance by the following letter:

Gentlemen:

I have read at length the first issue of your weekly publication, and it interested me quite a lot indeed.

You are perfectly right in asking the consumer for his opinion, as this is a point which is often overlooked.

I am enclosing a clipping which was handed to me through the office, and I think your readers will be interested in seeing it.

You have my letter of June 16, in which I answered your questions, so you know my views.

Very truly yours.

In response to inquiries for more complete information on the domestic industry than that given in the article on dyestuff production in the United States, which appeared in *Commerce Reports* for May 14, 1917, the Bureau of Foreign and Domestic Commerce on June 6 sent forms to all manufacturers of dyestuffs known to the Bureau, requesting their cooperation in securing more accurate returns. Practically the whole industry responded, the exceptions being a few minor firms and those just beginning operations and not in a position to calculate their probable output. Of 103 forms filled in and returned, all but three show in detail the capital invested and the variety, monthly production, and occasionally the quality of product manufactured by each firm, with frequent notations indicating the lines of experimental research now being conducted with a view to further development. On the remaining three forms reasons were given why only partial information was available.

Notices received during the year state that 12 firms have gone out of business or discontinued the manufacture of dyestuffs. Ten others have been eliminated by consolidations or absorbed by holding companies. An increasing tendency is shown in the industry to an amalgamation of interests among certain plants making crudes and intermediates with others producing finished dyestuffs, which will probably result in a more extended variety of colors at a decreasing cost of production. Several instances are noted where two or more allied corporations have apparently pooled their interests to facilitate the manufacture and marketing of their products, while one recent amalgamation includes some of the largest plants in the country.

Many of these great corporations have branches in various cities of the United States, and a few have established agencies in Latin-American capitals and in London, Paris and Shanghai.

The capital stock given on 90 forms aggregates $158,913,650. According to notices of very recent incorporations, 22 new enterprises have a total capital of $4,112,000, making the total investment in the industry $163,025,650, as far as actual figures are available. This amount does not include the capital invested in dyestuff production by 10 firms, some of which are just beginning operations, while others state that they are not incorporated and have no capital stock, but are amply financed, or are owned by a single individual. These plants will probably be in full operation by 1918 and add several million dollars capital to the dyestuff industry. Another difficulty encountered in computing the total capitalization is the fact that a number of firms which formerly manufactured only explosives or a general line of chemicals state that their dyestuffs are by-products of recent development and that it is impossible to draw a line of demarcation to determine just what portion of their capital is invested in color production. No effort has therefore been made to supply these missing figures. If full and accurate data were obtainable, it is believed that the recent estimate of $200,000,000 invested in the domestic dyestuff industry, published in one of the trade journals, would be too conservative.

Twenty-one of these corporations have invested from $1,000,000 to $21,000,000 each, and 40 others have a capital ranging from $100,000 to $800,000.

From figures submitted by manufacturers the following totals of monthly production for the current year have been compiled:

Firms making returns.	Products.	Pounds.
22	Crudes:	
	Benzol, toluol and some xylol and phenol..	*a* 1,240,350
	Benzol, toluol, natural and synthetic phenol, cresol, naphthalene, anthracene and some xylol, cumol and amylene..	6,181,600
40	Intermediates	10,420,600
46	Artificial colors	5,000,000
13	Vegetable dyestuffs and extracts (including some tanning extracts) not stated separately.	8,183,500

a Gallons.

The above returns were submitted voluntarily and are as nearly complete as can be obtained by correspondence. For general purposes, they are fairly representative of the industry as a whole, though faulty from a statistical standpoint since, as stated, no returns were received from several minor firms so recently established as to be unable or unwilling to go into details of product and output, but whose combined production for the remainder of the calendar year would constitute only a small percentage of the whole. In some instances the figures for benzol are in excess of the amount used in the production of synthetic phenol. In this connection, it may be interesting to compare the above with published estimates by a leading authority on the subject that out of an approximate benzol production for 1917 of 220,000,000 pounds only 37,000,000 pounds would be used for dyes; and a present indicated consumption of 12,000,000 pounds of naphthalene per annum in the manufacture of intermediates.

As stated by some of the larger firms, it is, of course, difficult if not impossible to give the exact amount of each article produced month by month, as the production varies according to the market. The demand for certain colors remains constant, while others are discontinued and the intermediates required in their manufacture are diverted to other purposes. The industry is still in the experimental stage, many products being manufactured on a semi-commercial scale, with processes not fully developed and qualities not yet standardized. In the case of the larger groups or amalgamations, the proper co-ordination of multiple phases of manufacture is being slowly perfected. The limited capital and productive capacity of newer plants frequently limit their operations to the filling of actual orders without any attempt to carry their products in stock.

In round numbers, the 40 estimates of the monthly output of manufacturers of intermediates range from 1,000 to 2,000,000 pounds each. The monthly production of three factories reaches seven figures, and that of 15 others is expressed in six figures. Some of the factories make only the intermediates required for their own consumption in producing finished colors, some manufacture in excess of their own needs, while the efforts of others are confined to a line of intermediates only. The major portion of the total output of intermediates is probably consumed in the dyestuff industry, although a large amount, especially trinitrotoluol, falls in the category of explosives. There is a constant increase in the variety of intermediates and chemicals produced in this country for making colors. Dyestuff manufacturers are now producing large quantities of toluidines, resorcin, xylidine dianisidine, naphthylamine, diphenylamine, tolidine, benzidine, benzaldehyde, benzylchloride, nitrobenzol, nitrotoluol, H-acid, phthalic, metanilic, sulfanilic and naphthionic acids, naphthosulfo acids, naphthylaminsulfo acids and amidonaphtholsulfo acids, Schaeffer's salt, paranitraniline, dimethylaniline and numerous others.

A glacial acetic acid plant of large capacity is expected to begin operation in September, and will be of the greatest assistance to the industry in general.

The current monthly production of 46 manufacturers of finished dyes is at the rate of 5,000,000 pounds, or 60,000,000 pounds annually, individual outputs ranging from 600 to over 2,000,000 pounds each. This does not include any estimate from one plant of the first magnitude whose entrance into the industry has just been announced to the trade, or a score of smaller projects organized but not yet in full operation. The total shown includes only the figures given by the factories of actual production for the current calendar year and makes no allowance for many plants now in course of construction which will soon be producing colors on a commercial scale, nor for the output of many dyes still in the experimental stage. These facts leave no doubt that our present annual domestic output greatly exceeds in quantity the entire consumption of artificial colors in the United States during the year 1914, estimated at 60,000,000 pounds, and is probably equivalent to the current annual consumption, which is considerably in excess of that for 1914. The returns further show beyond all question that a vast amount of technical talent and native inventive genius are now being concentrated on experimental research to perfect processes of production, improve quality, and enlarge the variety of dyes so as to include not only the more complex known colors currently used in Europe but possible new ones.

Coal-tar dyes in a variety of colors suitable for leather, textiles, straw, paper, inks, stains, pigments, varnishes, waxes, feathers, furs and for many other purposes are now regularly obtainable from domestic sources. Several manufacturers carry full lines of direct, acid, basic, chrome, oil, and sulphur colors, while others confine their efforts to improving and extending their output of particular groups. Prominent among the colors produced are nigrosines, indulines, triphenylmethane dyes, safranines, eosines, chrysoidines, rhodamines, rosanilines, direct fast reds, browns and yellows for cotton, fast chrome colors for wool, Sudan colors, basic violets, synthetic indigo and indigotines, alkali blues for the silk and woolen industries and also for the lithographic trade, metanil yellow, methyl violet, methylene blue, benzopurpurine, benzo sky blue, primuline, naphthol green, rose bengale, gallocyanine, and special chrome and khaki colors.

Considerable attention is being given by about a dozen firms to developing as rapidly as the requisite intermediates are available the triphenyl-methane dyes, particularly fuchsine, methyl violet, methylene blue, magenta, and malachite green. Their output of many of these colors was not separately stated by some of the factories. The itemized figures given by only a few of the plants, however, show a monthly production of this series of colors amounting to 62,200 pounds. Of this quantity 18,200 pounds represent methyl violet and 13,450 pounds methylene blue. Two manufacturers specialize on the needed intermediates for these dyes.

There is a largely increased production and variety of reds, yellows, and scarlets, prominent among them being parareds for the printing trade, lithol red R, paramagenta, croceines, fast red Bordeaux for wool, acid reds and scarlets, wool scarlet, Biebrich scarlet, chrome yellow, metanil yellow, chrome orange, and brilliant orange. A wide range of fast reds, blues, greens, yellows, blacks, and grays for cotton is also available.

Colors now produced on a commercial scale that were not made in this country until recently are alizarin blues, browns, and yellows for calico printing, and for wool; paracolors for lakes or pigments, vat dyes (sometimes called indigoids) for cotton shirtings and ginghams, synthetic indigo, rhodamine, patent blue, and Biebrich scarlet.

Plants Can Increase Output as Demand Warrants

Present production and new developments contemplated include blacks and greens in natural colors for calico printers, a special logwood blue, special mordants for dyeing new shades in direct cotton colors, khaki dyes, cutch, archil, and logwood extracts, and cudbear powdered, orange, and lemon flavines, Osage orange in a variety of shades, American sumac extract, indigotin, and natural indigo shades. It is stated by several plants that their output depends on the domestic demand, ample facilities being available for a largely increased production at any time. Some operate at half capacity, while others are running twenty-four hours a day.

One firm is making sulphur brown (not a coal-tar product) on an extensive scale, while another company is producing mineral colors in standard shades for wool.

Soluble Prussian blue, Chinese blue, pigment brown, lakes in all the principal colors, paratoners, dry colors, and dyes for lake makers are specialties handled by different manufacturers.

The urgent demand for photographic developers since the war began has greatly stimulated the production of hydroquinone, p-amidophenol, metol, amidol, and reducin. Single firms report monthly outputs of 1,000 to 15,000 pounds each of hydroquinone.

Manufacturers of coal-tar by-products are also marketing quantities of salicylic acid and its derivatives—particularly acetyl-salicylic acid (aspirin)—phenacetine, acetphenetidin, acetanilide, and other medicinals.

One maker of intermediates is producing the synthetic perfumes nerolin and bromelia. Another firm includes vanillin, used in flavoring extracts, in its list of products, and also saccharin.

The most striking feature brought out on the forms filled in by the dyestuff manufacturers is the marvelous growth of the industry and the plans in process of formation for its continued expansion in both domestic and foreign fields.

Announcement has been received of the entrance into the dyestuff industry of the leading company manufacturing explosives, fully equipped with a chemical and engineering staff, plants, and laboratory facilities, and an adequate commercial organization to meet the demand for colors on a vast scale. Other new plants in process of construction or to begin operations before 1918 are two for coal-tar crudes, one for anthracene, one for glacial acetic acid, four new buildings for aniline dyes, one for chrysoidine and methylene blue, one for nigrosine, induline and magenta, and one for nigrosine only. A producer of direct, acid, and chrome colors expects to double his present output of nearly half a million pounds annually inside of twelve months. One plant making methylene dyes is planning to double its capacity, two others making aniline colors will also double their capacity shortly, one manufacturer expected to have patent blue and fuchsine on the market after July, one of the larger corporations is now making auramine and lanafuchsine on a small scale and installing equipment for their increased output, and another contemplates the manufacture of primuline in considerable quantity. A producer of high-grade colors for silk is enlarging his factory and contemplates the early production of safranine and a suitable plant for the extensive manufacture of aniline dyes.

Notations on a very large proportion of the forms returned show that experimental research is in progress on a great variety of products that are now being manufactured on a semi-commercial scale with a view to increasing production as the processes are worked out in the different establishments.

Foreign trade opportunities published in *Commerce Reports* during the past few months from agencies in Norway, Spain, Brazil, Venezuela, and several from India, indicate foreign fields awaiting exploitation in this line, while recent sales of such products have been made in England.

Dyes and dyestuffs exported from the United States during the fiscal year ending June 30, 1917, were valued at $11,710,887 as compared with $5,102,002 for 1916. Beginning with July 1, 1917, the classification for monthly statements of exports will include under dyes and dyestuffs the subdivisions, aniline dyes, logwood extract, and all other shown separately.

THE AMERICAN DYE INDUSTRY

(*Continued from page* 3)

by the foreign makers in order to embarrass their American competitors have been made up many times over from the high prices exacted for those products over which they exercise complete control either by reason of existing patents, trade secrets or monopoly of manufacture.

There is only one procedure which will result in the business being built to a size compatible with the needs of the country and that is the fullest protection after careful consideration and investigation, not by *politicians,* but by a committee or commission composed of the business and scientific authorities in this branch of trade.

For the good of America, may this be consummated.

NOTES OF THE TRADE

(*Continued from page* 9)

The Walker Chemical Company has been incorporated in Dover, Delaware, with a capital of $10,000. It is the intention of the company to manufacture chemicals, a list of which will appear in the Reporter as the products are perfected and placed upon the market.

The National Chemical Products Corporation has been formed to manufacture and sell dyestuffs, chemicals and allied products. It is reported that the capital is something in excess of $2,500,000.

The Impertecu Chemical Co., has been incorporated with $200,000 capital and will engage themselves in the manufacture of chemicals.

A company has been formed in Brooklyn, New York, with a capital of $10,000 to manufacture and sell chemicals and products closely allied to the industry.

Natural Products Refining Co., has been incorporated in Newark, New Jersey, with a capital of $200,000 with which they intend to manufacture chemicals and allied products.

The Barnes Cooper Chemical Works, at St. Louis, Mo., has been incorporated with a total capital stock fully paid in of $30,000 to manufacture chemicals, dyes and other allied products.

DYESTUFFS AND CHEMICALS THAT ARE ACTUALLY OBTAINABLE

We suggest to our readers that they carefully preserve these lists, as in their complete form they will give a full and complete record of the sources of supply of all dyestuffs and chemicals manufactured or handled by reputable American companies.

RALPH L. FULLER & CO., INC.

Sulphur Black
Sulphur Brown, Khaki (all shades)
Chrysoidine Y
Bismarck Brown Y-YY
Direct Brown R

NATIONAL ANILINE & CHEMICAL COMPANY, INC.

244 Madison Ave., New York

Aniline Colors

Direct colors: for cotton, union goods, etc.:

Erie Black Gxoo
Niagara Blue 2B
Niagara Dark Blue 3R
Niagara Blue DB
Ammaco Direct Blue 3B
Erie Brown C
Erie Brown GR
Direct Brown T
Erie Green WT
Ammaco Direct Green WB
Erie Green MT
Erie Orange 2R
Benzo Purpurine 4B W
Congo Red 4B
Niagara Garnet R
Ammaco Primuline WB
Niagara Violet BW
Niagara Fast Yellow F
Niagara Yellow KM
Ammaco Chloramine Yellow WB
Ammaco Delta Red 2B

Sulphur Colors

For cotton, fast to washing, crossdyeing, etc.:

Sulphur Black F Conc Paste
Sulphur Black Sap Powder
Sulphur Blue Paste
Sulphus Blue Sap
Sulphur Direct Navy Blue
Sulphur Brown 2G
Sulphur Brown Sap
Sulphur Brown WF
Sulphur Brown LY Conc
Sulphur Green Sap
Sulphur Yellow BW
Sulphur Khaki all Shades

Acid Colors

For wool, silk, leather, lake making, etc.:

Buffalo Black NBR
Buffalo Black 10B
Buffalo Black 8B
Buffalo Black 3G
Buffalo Black RB
Ammaco Acid Black TR
Buffalo Black AR
Acid Black 4A B
Buffalo Fast Blue R
Buffalo Cyanone 3R
Induline
Resorcine Brown
Fast Brown
Ammaco Acid Green L
Orange A Conc
Orange S Conc
Orange 2G Crystals
Brilliant Scarlet 3R
Xylidine Scarlet

Fast Red S Conc
Scarlet BR
Azo Rubine Extra
Buffalo Fast Crimson R
Azo Bordeaux

Buffalo Fast Fuchsine D
Buffalo Fast Fuchsine G
Buffalo Fast Fuchsine R
Buffalo Fast Fuchsine 6B
Wool Red 40F
Cloth Red G
Cloth Red R
Croceine Scarlet Moo
Lanacyl Violet M
Acid Violet
Buffalo Violet 4B
Buffalo Fast Violet B
Wool Yellow Ex Conc
Azo Yellow A 5W
Metanil Yellow 1955

A. K. KLIPSTEIN & CO.

644 Greenwich St., New York

Acid Dyes

Indigo Extract BF
(made from Synthetic Indigo)
Induline AK
Azo Rubine
Brilliant Scarlet
Croceine Scarlet
Amaranth
Acid Wool Orange Paste
Acid Wool Yellow Paste
Victoria Blue B
Wool Green S

Basic Dyes

New Fast Blue RS
Patent Phosphine GG
Methylene Blue O Concentrated
Methyl Violet KA
Auramine O
Rhodamine B Extra
Rhodamine 6G Extra
Malachite Green AK

Chrome Colors

Gallocyanine 20% Paste
Flag Blue
Chrome Fast Black PWRL Concentrated
Chrome Fast Yellow G
Chrome Fast Yellow O

Direct Colors

Chrysophenine

Sulphur Dyes

Alpha Black
Zeta Black
Sulphur Brown BF
Sulphur Cutch BF
Sulphur Khaki BFY
Sulphur Khaki BFB
Sulphur Green BF
Zeta Blue, Green Shade
Zeta Blue, Red Shade

Vegetable Dyes

Fustic Extract
Logwood Extract
Logwood Crystals
Hematine Crystals
Super Hematine
Sumac Extract
Colorless Sumac Extract
Quercitron Extract
Quadruple English Archil Extract

Fast Fat Dyes

These dyes are made expressly for us by the Society of Chemical Industry in Basle, Switzerland:

Ciba Synthetic Indigo 20% Paste
Ciba Blue 2B 51% Paste
Ciba Blue 2 BD 16% Paste
Ciba Violet B 10% Paste
Ciba Violet B 100% Powder
Ciba Blue Green Shade
Cibanon Olive B Paste

INTERMEDIATES

Nitro Toluol
Dinitro Toluol
Meta Toluylene Diamine
Diamine Developer C (Crystals)
Toluidine
Aniline Oil
Para Phenylene Diamine
Oxide of Iron

AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

Circulating Wherever Dyestuffs are Used

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FOREIGN TRADE POSSIBILITIES

SECRETARY OF COMMERCE, IN ADDRESS BEFORE SOUTHERN COMMERCIAL CONGRESS, TELLS OF BROADENED VISION THAT AMERICAN TRADE WILL HAVE.

The following is a summary of an address delivered by Mr. William C. Redfield, Secretary of Commerce, at the banquet of the Southern Commercial Congress, Hotel Astor, New York, October 16, 1917:

"It is not modest, indeed it is dangerous, to assume the rôle of prophet concerning future economic changes. No man is wise enough to foresee to-day that which will come with the end of the war. We do not know, indeed, what economic changes will take place before the war shall end. There may be financial or political developments in one or another country in the months before or following the war's close which no one can foretell. One may not say positively what or where the unexhausted reservoirs of credit shall be or how much of what is thought to be war legislation in one or another country is to be permanent.

"It is easy from one set of facts to deduce that there will be a general collapse of commerce with the end of the war. It is quite as easy from another set of facts to infer that there will be great industrial and financial activity when the war closes. Neither viewpoint may be based upon all the facts, and there may be—probably are—economic forces at work which will produce results either quite unexpected or which will occur for reasons quite other than those relied upon to bring them about.

Will Find Strange World

"When peace shall come and her merchants take up the task of restoring Germany's ruined commerce they will find that it is a strange world which they seek to re-enter. There will be difficulties in the path of future peaceful penetration of which they seem not to dream. Commercial frightfulness, like its military namesake, will have passed away. It will hardly be said again to any Secretary of Commerce of the United States that the German Dyestuff Verein will not 'permit' the establishment of an American dyestuff industry. The monopolies on which German foreign commerce in large part seemed to rest secure have passed away. Our friends beyond the sea and we ourselves have learned the danger of having our industries wholly dependent on foreign sources of supply which may become unfriendly.

"It is pitiful to read extracts from the German press which seem to show that they expect to take up the task of rebuilding their commerce where they laid it down. They reckon the world's demand for potash as a purely German asset. It was so, but it is so no longer. They were the world's source for dyestuffs. That opportunity has gone. It was they to whom the world looked for optical glass. We do not look there now. They were the source of supply of chemical porcelain. We make it to-day as well as they. They had applied science to industry more than any other people and had built up industrial power by means others had neglected. We have learned that lesson also, and in the countries represented here to-night science speaks

to and through industry with an authority and success which we did not know, which we have been glad to learn, and which we shall not set aside.

"I need not tell you of the commercial value of what we call 'good will' or point out the advantage of doing business as 'a going concern.' The great markets of the world have been and are to be found among the nations who have parted company with Germany in the present struggle. Her past markets have been found among them. The peoples of these lands are not likely by one common impulse to turn quickly to Germany for a renewal of the commercial intercourse which was broken by her act.

Change in American Viewpoint

"As it will be a strange world upon which the German merchant will look out when war shall close, so let me add it will be in a large measure a strange world upon which the American merchant will look out at the same time. When embargoes are over and trading with the enemy acts shall have ceased to trouble, we also shall see things differently. The novelty will not on our part arise from separation, but the reverse. We have gained and are gaining a better understanding of the world we live in. Scales of provincialism have fallen from our eyes. When our sons have fought and died together with those of Great Britain, France, Italy, Russia, and our other honored friends, things can not be as they were before that happened. Each knows the other better than he did. Old lines of separation have gone.

"Applied to commerce this means that we understand other peoples and their needs better and know better what we may do to supply them. We have come into a family relationship, very near, very helpful to all in the family. It must alter the world of commerce as it is altering the world's geography. We shall face that period, too, with new powers. We are learning thrift. We are giving the chemist and the men of other sciences their proper places. We are using resources long neglected. Our men with vision are reaching out into all the lands. The American bank, the American investor, is making his way throughout the world. The physical and financial tools of commerce which we long have lacked are prepared to our hand. The day of isolation is gone. We are in the family whether we will or no, and in my earnest belief we shall draw richly from the family intercourse."

THE GREATEST ABUSE IN THE DYE BUSINESS

Occasionally some well intentioned zealous person hears of a few well authenticated cases and comes out with the announcement that there are grafters in the dyestuff business. Clippings are shown giving newspaper reports which prove the facts beyond doubt and the question is settled. The result is that every dyer or user of dyestuffs comes under suspicion and his employers begin to worry and figure how much they have probably lost since they have been in business. The dyestuff salesman comes into the office and feels instinctively that he is as welcome as a bank robber. Are we trying to apologize for the grafters? you ask yourself. No, because we know there are grafters, that there have been in the past and probably will be in the future. There are grafters that buy dyes and grafters that sell dyes, there are others that traffic in oils, others that buy general merchandise and even ones that collect for charities and others that buy hymn books and bibles. In other words there is a fairly constant percentage to be found wherever one man has the job of spending the money of another—why pick on the dyestuff business?

In our best and most civilized communities there is also a great proportion of various gentry who do not, and never will conform to our ethical standards. We maintain police forces and prisons, lock our doors and keep our money in the banks and never give them a thought unless by not being duly careful or alert we come into closer contact with them.

Just as we take precaution against the few who are designedly dishonest and treat our fellow citizen with respect until we have good cause to think him otherwise, we may regard the dyestuff dealer and the dyer as men of as high principles

(*Continued on page 5*)

Inquiry Department

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Question: What is the meaning of the term "pure dye" as applied to silk goods? What specifications does a dye have to meet for the purpose?

Answer: Pure dye in the sense of the silk dyer means that the fabric has simply been dyed to produce a color on it, just as cotton and wool are dyed. The term is used in distinction from weighted dyeing, it has no reference to the original quality of the dye and any dyestuff that has the other necessary qualities is available.

Question: Have any of the American manufacturers taken up the production of the solid hydrosulphites used for vat dyeing, stripping and discharging?

Answer: We have no knowledge of these products being made in America in the permanent form. There are several firms, however, who prepare the liquids and these are quite efficient but of course must not be kept for any great length of time as they deteriorate. Hydrosulphite conc., decroline and rongalite are patented and may not be made in this country unless Congress legalizes their manufacture under license.

Question: Is it possible for a chemist to make an analysis of a Logwood extract and tell accurately just how much Hematine and Hematoxylon are present?

Answer: It would be possible by working under highly scientific conditions in the absence of air to determine at the moment of analysis the degree of oxidation. This analysis would not represent the original either before or after, because wherever there is air access a slow oxidation is taking place and when the dyer uses it there is an oxidation during the heating and the final product is Hematine. Dye tests can be made on oxidizing and non-oxidizing mordants for comparison and these are probably of more value than a strictly scientific analysis. The results are only approximate and the tests should be done at the same time under identical conditions.

Question: Why are Basic dyes and Acid dyes so called?

Answer: The names have reference to the constitution of the dyes. In a basic dye we have a *base* derived from aniline products combined with ordinary colorless acids to form the dye salt, while in the acid dyes we have an acid derived from the aniline products combined with an ordinary base such as soda or potash. Some dyes like Bhodamine are on the border line and the direct cotton colors are really acid dyes in constitution. The subject might be discussed at greater length but the explanation just given is as simple as we can make it for the general reader.

Question: After buying a lot of a certain dyestuff and having it tested I am informed that it contains over 75% of salt, wouldn't this constitute a basis for a criminal suit against the broker?

Answer: Dyestuffs unfortunately have no legalized standards and the only recourse of the buyer is to purchase by sample and have the testing done beforehand instead of afterward. We are not in a position to give legal advice but think that if you can prove fraudulent representation the rest would depend on your lawyer. Years ago, gold bricks were sold on Broadway and very few convictions followed, gold bricks are no longer in fashion and the same parties seem to have gone into the dye brokerage business, since the war.

To Properly Clean the Hands

Persons handling dyestuffs who clean their hand with Hypochorlorite of Soda or Bleaching Lime should always follow with a wash in Bisulphite of Soda.

THE GREATEST ABUSE IN THE DYE BUSINESS

(*Continued from page* 3)

as our own, until we have good cause to change our opinion, meanwhile keeping up the vigilance which would be expected of any good business man or householder.

This is not an article on grafters, the foregoing has merely been put in to do justice to the dye business which we believe is as clean in that respect as any other business, and business is neither politics nor religion. We will devote the remainder of our space to the principal subject—Crooks.

A crook or "Gyp" in the dye business or "Game" as they themselves call it follows about the same lines as any other speculator in staples, only he tries to find a purchaser before he buys (this is called playing safe) not a consumer, but another of his kind who follows the same routine. Samples are passed, the price run up a notch or two and before delivery is made the dye is reduced anywhere from ten to forty percent or even more, an argument follows delivery, a compromise is effected and the difference is profit or "velvet." Should a bona fide consumer get into the circle and get the dye the gyps will have lost a plaything and the consumer will have lost his faith in humanity. This speculation in dyes is practically the same as the trading in grain or cotton which is the pastime and livelyhood of a large class of financiers in Chicago and elsewhere, the sufferer here as there is the ultimate consumer.

Wheat or cotton have standards and the worst that can happen is that the price may be (always is) forced up, but with dyestuffs even if the consumer pays many times the real value for a remnant of a German dye (there is very little speculation in American products) he seldom gets a delivery equal to the sample. In justice it must be stated that there are brokers who are honestly trying to obtain good dyes to sell to consumers, the prices are high but they have to pay high prices and do not make as high percentage of profit now as the regular dealers made before the war. They too are at their wits end to eliminate the unscrupulous gyp.

The remedy is simple—If everyone insists strictly on the terms "Delivery in absolute accord with sample" and refuses to accept a rebate or make any compromise, for that is where the profit is made, in case the delivery is below sample, the gentlemen will soon be paying their profits of the past to the express companies and the business will again become normal.

We may be criticised for calling attention to the gyp after what was said concerning the grafter, but we will go back to original comparison—we know there are burglars and are on our guard but are always grateful to the press when our attention is called to any new form of menace so we may be on guard against it as well.

We are looking forward to the time when the American dyes will cover the entire field, when definite standards are established and when anyone offering Methylene Blue 100% and delivering a 90% quality will be more exactly defined in the statute books.

INDIGO ON COTTON PIECE GOODS

The difficulty of dyeing cloth with Indigo to the exact shade of a pattern is well known in practice.

The dyed piece frequently shows a marked difference in shade from that of the sample, and the reason for the difference in such cases is usually not easy to determine.

The variation in shade depends on a variety of causes. We will in this article discuss the influence which the various treatments of the cotton fibre, before and after the actual dyeing, have on the shade of the finished article.

In the first place, it is naturally of importance that both the preliminary treatment of the cotton and the setting of the Indigo vat should be efficiently carried out, but there is a tendency from economical considerations to shorten the methods of working. Such procedure, however, always leads to a more or less distinct difference in the shade of the finished piece.

The different points under consideration which lead to variations in shade are classified as follows:

Dry and Wet Pieces.

A dry piece is always slow in wetting out, and the dyeing is in consequence superficial and often irregular. A wet piece gives more level dyeing, but the shade obtained is somewhat lighter.

Pieces With Differently Twisted Threads.

Strongly twisted threads offer greater resistance to the penetration of the Indigo White solution, and the dyeing is therefore somewhat superficial. Weakly twisted threads absorb the Indigo White better, resulting in more level dyeing.

Scouring, Bleaching, Mercerizing.

If the raw goods are scoured (to remove sizing materials, etc.), bleached and mercerized before dyeing, the shade will be greatly altered. The size and natural impurities of the cotton form a protective layer not easily passed through by the dyestuff, and their removal facilitates the penetration of the Indigo, and leads to brighter and more level shades. Owing to their natural color, unbleached goods dye a somewhat duller though slightly heavier shade than do bleached goods. The effect of mercerizing is to increase the depth of shade, and owing to the change in structure of the fibre, the dye is rather more superficial than in un-mercerized goods.

Special Treatment Before Dyeing.

Treatment with sulphonated oils or glycerine, as a rule renders the dye less fast, but more level. Treatment with starch makes the dyeing lighter and more superficial. Size increases the levelness but changes the shade, owing to the color peculiar to this material. Sodium and ammonium salts tend to make the dyeing more level. Metallic salts which act as oxygen carriers, accelerate the process but give more superficial dyeing. Moreover, the metallic oxides which are fixed on the fibre, influence by their color the shade of the goods. With copper, a greenish, and with manganese, a brownish cast is obtained. When the dyeing is conducted in vats, which are used continuously and simply made up to strength after each operation, the effect of the treated cloth is in time to load the vat with objectionable impurities, such as slimy metallic hydrates, or starch and gelatinous products. The use of natural Indigo is also open to the same objection, as it may contain anything from 10 per cent to 60 per cent of impurities.

Fermentation Vats.

The same difficulty is met with in using fermentation vats. Many of the substances employed in setting such vats are colored, and this influences the brightness and purity of the Indigo shade.

After Treatments.

After the dyeing operation the pieces are usually subjected to various treatments. They may be treated with cold or boiling water, with acids, alkalis, chromates or soap solution. All of these influence the ultimate shade of the piece.

Thickening Materials.

The thickening materials used in finishing the dyed goods are usually somewhat colored, and form on the fibres a layer which is not always quite transparent, and which may detract from the purity and brightness of the shade.

Lustering, Calendering.

Differences in the mechanical treatment of the goods (*i e.*, wringing, lustering, hot and cold calendering, etc.) may also cause differences in the appearance of the finished articles.

Heating.

Finally, the effect of heating is well known. By heating the pieces to 100 deg. C., especially in the presence of steam, the violet cast of the dye is enhanced. It is often assumed that this is due to a partial sublimation of the Indigo, but we cannot accept this view, regarding it as being caused by a molecular rearrangement of the dyestuff particles.—*Posselt's Textile Journal.*

THE INDUSTRY AS THE CONSUMER SEES IT

I recommended a moderate tariff with good anti-dumping provisions and without unfair discrimination between different classes of colors.

The concerns from whom we have been purchasing in the past have always been ready and willing to do everything in their power to fill our inquiries direct and give us the best possible service under these trying times.

An inquiry department would, no doubt, be of advantage, as the consumers would be in better shape to know then whether the dyestuffs they were using could be secured continuously and in sufficient quantities.

Articles should be technical enough to accurately express the idea of the writer, but not too technical to be understood by the average layman.

The judgment of the writer is that a protective tariff should be advocated on American-made dyes, which means, of course, that it would be a tax on the whole country indirectly, for the reason that well established dye industries have the elements around which high explosive manufacturing can be carried on in case of sudden need. That is a government asset which should be protected and developed.

We have had very little difficulty from brokers, as we do practically no business with them.

The only remedy is for the management to know as much as, or more than, any dyer about the coloring of his particular cloths. There is then no opportunity for misrepresentation.

Mailing of Dyestuff Samples

When sending dyesuff samples through the mail always use a regular sample envelope, folded over *twice* and an additional wrapper of tissue paper. We have seen an entire mornings mail soiled, and the office force as well, on account of carelessly packed dye samples. The impression produced by such an occurrance was not such as the sender of the samples would have considered favorable to him. The trouble and expense are so slight that it is worth remembering.

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Elisha Hewitt, Secretary and Treasurer

Myron Drew Reeser, Managing Editor

World Trade

We Americans do not fully realize the wonderful possibilities that are open to us in the field of foreign trade. We do not realize the seriousness of the situation that will develop if we do not prepare at once to meet the trade competition which will shortly arise. We neglect to profit by the example now being set by those other countries who are preparing a systematic organization of industries in anticipation of a trade war. Unless some radical change takes place in the attitude of the smaller manufacturers of dyestuffs and chemicals, we will face a serious situation. To gain even partial control of the industry means the establishment, at once, of a better understanding between government, individual manufacturer and ultimate consumer. We must conduct our industry on a national scale. We must gain the steadfast support of public opinion. We must forget the narrow policy of individualism and concentrate our efforts upon systematic expansion.

Consumers Can Help

We face a serious situation, and help is needed in organization of the industry. Too much has been said in the past by editorial writers and not enough by those who really know conditions in the industry. We want you who consume colors and dyestuffs to feel that this is your page. That it is a means of expressing your views to the manufacturer and your other associates in the industry. We want you to feel at liberty to correspond with us regarding the subject mentioned above, or any subject of interest, and we assure you that your name will not be mentioned. We want to have this page devoted to promoting a closer affiliation of small manufacturers and, in so doing, the opinion of each individual is valuable. We do not want to make the editorial page a literary achievement but with your help, we do want to make it a human interest page.

The future of the industry is of vital importance to you in more ways than one. You cannot market your manufactured articles abroad unless the color problem is solved.

We hope that you will tell us your views with regards to preparing America and this new industry for competition in the field of foreign trade. Your suggestions when brought to the attention of the manufacturer will do much to influence cooperation.

Do you feel that it would benefit the industry if the small manufacturers would concentrate upon one, two or three colors and devote their efforts to meeting the demand for them? There are a number to whom we have spoken regarding this and they were quite willing, in fact anxious, to do this as it would mean a substantial reduction in their over-head expenses, etc. We want your views on this and we want the views of the manufacturer and we, in an impartial way, will present the result to you on the editorial page of the Reporter.

The Manufacturers' Viewpoint

The manufacturer tells us of many discouragements he receives at the hands of the consumer. He tells us that you have him make exhaustive laboratory tests and after his submitting many samples, purchase five or ten pounds.

We naturally are in a position to hear more of the manufacturers' side of the story and now we want you to tell us of actual difficulties you may be having. If we can print in the Reporter a letter or two each week from an actual consumer regarding conditions from his viewpoint, we will have accomplished our object. We are devoting our efforts to improving conditions for you and your actual help is most necessary.

There are twenty-five representatives of the Japanese government in this country at the present moment, attempting to purchase large quantities of intermediates and finished dyestuffs.

We were in conversation with one of these representatives who told us that conditions here made it almost impossible for them to deal with us. There is a certain intermediate that they are anxious to obtain and their quest for this has led them through many difficulties. Even now, they have been unable to obtain it in any quantity, and then only through a brokerage house. To our knowledge this particular intermediate is made by four companies and perhaps by many more who lose their identity in broker publicity. Perhaps there is some good reason for not wanting to deal with the Japanese but what it is we would like to know. To us these agents represent the vanguard of a general movement to purchase intermediates and finished dyestuffs in this country and this should meet with the ready cooperation of American manufacturers.

We cannot protect the industry or hope to enter the field of foreign trade until the manufacturer identifies himself with his products.

Would it be of interest to the consumer to have less competition on particular colors? If the manufacturers were to pass upon the colors now on the market and, by agreement, allow each small manufacturer to concentrate on a few colors, instead of dabbling in fifteen or twenty, would it not systematize the industry from the standpoint of manufacture and help in purchasing and expediting delivery.

We hope that you will agree with us in our policy of not striving for editorial attainment and that you will help us in making the REPORTER a human interest medium.

NOTES OF THE TRADE

The Ajax Aniline Works, Brooklyn, N. Y., has been incorporated for $3.000. The company purposes to manufacture dyes and chemicals.

Jennings & Company, 93 Broad Street, Boston, Mass., who are selling agents for the Essex Aniline Works of South Middleton, Mass., announce that they are now making regular deliveries of Sulphur Yellow Olive Powder.

(*Continued on page* 15)

A Permanent Dyestuff Industry

There have been many romantic chapters in the industrial history of the United States—apparently insuperable difficulties overcome, and obstacles surmounted—but it is doubtful if history will accord a greater measure of appreciation to any than it will to the way in which, in the brief period of two years, American manufacturers have met and substantially conquered the dyestuff situation.

Prior to the breaking out of the European war, our dependence on foreign countries for the needs of our color-using industries was practically absolute. Approximately 90% of the artificial colors used at that time were imported, and even as regards the 10% which was manufactured in this country, the American dyestuff maker was largely dependent on foreign sources of supply for his intermediates.

At that time there were only five concerns engaged in the making of coal tar colors, and these were continuing their operations either at an actual loss, or at least without profit, and in the somewhat forlorn hope that there would be some development, either in the form of more considerate legislation, or extended markets, which would justify their courage and persistence.

The production of crudes and intermediates was in an even less encouraging condition, and with a long continued minimum of demand from the Government for those intermediates which would be employed in the making of munitions, during "the piping times of peace," there was but little inducement for capital to seek avenues of employment in the exploitation of coal tar products.

In addition to the artificial dyestuffs used prior to July, 1914, possibly 10% of the color requirements of this country was supplied by the natural dyestuffs or dyewoods, such as Logwood, Fustic, Cutch, Gambier, Quercitron, Sumac and the various redwoods from which such dyes as Hypernic are made. Of these, two only were native products of this country, Quercitron which is the extract of black oak bark, and Sumac, the product of the leaves of the well-known native shrub of that name.

The exigencies of the situation since the war commenced have sent investigators far afield to discover new sources of color, and among an immense mass of more or less useless data and experimentation, one native product stands out pre-eminently and takes its place as a worthy companion of the two older native coloring mediums—Osage Orange, to which I shall have occasion to refer with greater particularity later.

Of the natural dyewoods which were drawn from foreign countries, Logwood from Jamaica, Mexico and Haiti; Fustic from Cuba and Mexico; Cutch and Gambier from India and Burma; Brazil wood from Brazil, Lima wood from Peru, it may be said that the same causes which called them into exceptional demand, also made them more difficult to obtain, by reason of the shortage of shipping facilities, the imposition of embargoes, and other conditions made necessary by war developments.

At times, during the past two years, it has been impossible to secure regular and sufficient supplies of these materials, and this added to the cutting off of the supply of artificial dyestuffs and intermediates from Germany precipitated an incipient panic among our mills which will be only too well remembered by members of this association, and during which prophecies of the shutting down of industrial plants, and the approaching inability of our factories to supply anything but white goods were generally made.

Since that time, in addition to the original five companies engaged in making artificial dyestuffs, upwards of ninety enterprises, large and small, some making only one special color, others making more or less extended lines have come into existence, and over one hundred concerns are now engaged in the manufacture of the crudes and intermediates from which colors must be made.

Mr. Stone has told us of the work that has been accomplished by the older and more experienced makers, as well as by some of the newcomers in the industry; of the colors that have been added to the original list of American made colors; of the industries that have been rescued from imminent stultification, and have been restored to a position where they can still supply the demands of their customers and deliver the shades and colors to which they have become accustomed.

Granted that we now have, not the nucleus only, but a well grown actuality, even if not yet approaching maturity, in the matter of a dyestuff industry, it is not too soon to consider the ways and means to make that industry a permanent asset in the industrial life of this country, and not merely ephemeral effort meeting, with more or less efficiency, an exceptional and temporary need.

Of the several requisites to this end which I propose to consider at this time, I place first and foremost, as far transcending any other condition, the absolute and indispensable necessity of earnest and patriotic support on the part of the manufacturers themselves. By this I do not mean a willingness to support the new industry by using American-made colors simply during the time when no others are available with a mental reservation that you will revert to the use of German colors just as soon as they again become available, but by a broad-minded realization that the interests of the new industry are your interests, and that its permanent intrenchment in the industrial family of our country means an added success to your particular industry, and an asset on your particular balance sheet which you cannot afford to disregard. It will require patience on the part of the color user; it is not to be expected that the dyestuff makers can produce in all their characteristics and amplitude, in a period of less than two years, a range of shades which took Germany thirty years to develop. The progress already made has been marvelous, and color for color, and type for type, it can be fairly said that the American dyes, made from pure intermediates and following the chemical formulae which foreign makers have made standard, are just as brilliant, and just as fast as the foreign dyes.

Shortly after it became evident that the United States seriously proposed to emancipate her industries, as far as colors were concerned, once and for all from German domination, an insidious propaganda was carefully and industriously circulated throughout this country, largely through the medium of certain clothing associations, acting consciously or unconsciously as circulating channels, that American dyes were not fast, and could not, therefore, be guaranteed. To this day it is possible for the buying public to purchase goods over the counters of our retail stores, and be assured that "as the dyes are American and not German," the goods cannot be and are not guaranteed. Innocently these retail stores are lending themselves to a characteristically German attempt to poison the mind of the average American man or woman, and instill into them a belief that no dyes are fast except German dyes.

Were these people to realize that their action is essentially unpatriotic and un-American and that it is deliberately playing into the hands of our enemies, it is not to be supposed for a moment that they would continue the practice. As a matter of fact, there never was a pound of even German dyes sold in this country without the stipulation on the package that it was sold "without guarantee," nor was there ever a shade offered on a color card showing German colors without the same reservation.

It is doubtless quite true that in the first year or so after the war commenced a vast amount of goods were placed on the market, both piece goods, yarns and hosiery, on which the colors were anything but fast, and to the extent to which this happened, the public was confirmed in the doctrine with which it was inoculated. This was before, however, an adequate supply of American colors was available, and these goods were dyed in the panic-stricken time when even the very floors of mill store rooms were being scraped for color.

As was very pertinently pointed out in a recent issue of a leading trade publication, the most extraordinary blends and compounds of tag ends of German colors were used in order to get the shades required, and without any reference to subsequent results.

In the same journal, Mr. Edward S. Chapin has also very justifiably pointed out that some shades obtained during this period, by the use of natural dyestuffs, were secured under an entire ignorance of the proper use of mordants and by methods of dyeing and combinations of treatments which could only give notoriously unfast results.

The new industry is suffering from these conditions today and under the best of circumstances, it will be many a long month before the average housewife will be convinced of the serviceableness of American dyes, and will be willing to exhibit a preference for, instead of a prejudice against, American goods dyed with American dyes.

The patriotic manufacturer, willing even to make sacrifices in order to do his part in insuring this industry against extinction, will realize that it is his privilege, and his interest, to support the makers of dyes in this country by encouraging their efforts, by patience with their delays, and by condonation of their mistakes until they shall have learned by experience those finer and more intimate secrets of manufacturing methods which Germany only learned after two generations of patient research.

To the everlasting credit of some of our large manufacturers it must be said, and frankly and gratefully said, that they have accorded this co-operation and support to the new industry. They have purchased liberally of the domestic colors, and if the quality of shades obtained have not been just what they wanted in the first instance they have been willing to try again and yet again.

This need of appreciation, however, cannot be accorded to a very considerable proportion of the manufacturers of this country. This proportion has not shown an earnest and patriotic spirit in the encouragement of the new industry and has evinced a somewhat selfish disposition in its attitude towards the efforts that have been so freely and fully undertaken. They have exhibited an impatience with those who were shouldering the burden of creating this new industry and have not realized that the complications of the work were such that it has been impossible to expect immediate results which would be fully on a par with the results achieved by Germany after years of effort.

There has been a disposition on the part of some manufacturers to demand colors which would correspond identically with certain marks and brands which were in common use before the war, and they have not shown a willingness to cooperate with the domestic color manufacturers in arriving at a basis of standardization which would enable a fair comparison to be made between domestic and foreign colors.

Let me give an instance of what I mean. I recently received a letter from a certain manufacturer inquiring for some colors of which he was badly in need, and I will quote a single sentence from this letter, "These must be German colors; I do not care to take any chances with American colors." Now, I do not doubt but that gentleman wears an American flag in his buttonhole, and possibly his boy is in one of the National Army camps, and perhaps he, himself, is a member of the home guard in his own town, but somehow, I do not envy him his particular brand of patriotism.

I have referred to the question of standardization. This is the second principle requisite to insure the permanence of the dyestuff industry, and is a question in which the color using manufacturers are equally interested with the color makers. It is absolutely essential that steps should be taken at once to standardize American colors so that a manufacturer may know the relative values of offerings and just what he is buying in point of color value.

At present each manufacturer if he has any standard at all, has his own, and the strength of one man's product bears no relation to another's, and it is almost impossible to gauge the value of a color by the price. If America is to make a permanent thing of its dyestuff industry it must establish its own standards; not standards of one or more dominating interests working alone and without relation to the industry as a whole, but working co-ordinately with all reliable dyestuff makers.

How this can be done is receiving careful consideration at the present time from the various interests concerned. My own idea is that this can be most fairly and effectively managed by the dyestuff manufacturers themselves. I would suggest, as I have done before—the calling of a conference of the dyestuff manufacturers at which the fundamental principles of this question could be discussed and settled, and at which a permanent board of expert color chemists and manufacturers could be appointed that could act as a Bureau of Standards, and could authoritatively standardize new colors as they were produced.

(*This article will be continued in the next issue of the* REPORTER.)

DYESTUFFS AND CHEMICALS THAT ARE ACTUALLY OBTAINABLE

We suggest to our readers that they carefully preserve these lists, as in their complete form they will give a full and complete record of the sources of supply of all dyestuffs and chemicals manufactured or handled by reputable American companies.

MARDEN ORTH & HASTINGS CO.

61 Broadway, New York.

Logwood Chips, Oxidized & Unoxidized
Logwood Extract
Hematine Extract
Hematine Crystals
Fustic Extract
Fustic Extract A
Aurantine Powder
Aurantine Paste
Quercitron Extract
Cutch Extract
Sumac Extract
W & S S Nigrosine, blue
W & S S Nigrosine, jet
Sulphur Brown
Fast Acid Red
Fast Red E
Orange II
Anthracene Acid Brown G
Alizarine Yellow RW
Ponceau 2G
Ponceau R
Croceine Scarlet
Croceine Orange
Amaranth A
Amaranth B
Direct Claret
Congo Rubine
Congo Red
Chrysamine G
Benzo Brown
Benzo Orange
Direct Green
Diamine Blue BB
Oil Mahogany No. 3052
Oil Yellow D
Oil Orange
Oil Scarlet
Oil Blue
Oil Green
Oil Red No. 3
Oil Red No. 4
Oil Black, jet and blue shades

NATIONAL ANILINE & CHEMICAL COMPANY, INC.

244 Madison Ave., New York

(*Continued from last week*)

Chrome Colors

For wool, fast to light, fulling, etc.:

Basic Colors

Buffalo Chrome Black 2B N
Ammaco Chrome Black BN
Alizarol Black 3G
Alizarine Blue G
Alizarine Dark Blue GN (*Suitable for Navy*)
Alizarine Dark Blue RBN
Alizarine Bright Blue 3R YN
Serichrome Blue R
Alizarol Brown B
Alizarol Brown RB
Serichrome Green B
Buffalo Chrome Green CB
Ammaco Alizarine Orange WB
Ammaco Alizarine Yellow 331
Alizarol Yellow 3G

Basic Colors

For leather, paper, lake making, cotton printing, etc.:

Brush Blacks
Methylene Blue BS Conc
Ammaco Basic Navy Blue DA Conc
Bismark Brown Y Ex.
Bismark Brown 53
Ammaco Victoria Green WB
Chrysoidine Y Ex.
Chrysoidine 3R
Safranine A
Ammaco Safranine BL
Methyl Violet

Aniline Colors—Miscellaneous

Nigrosines
  Water soluble, blue and jet shade
  Spirit soluble, blue and jet shade

Oil Blacks
Chrysoidine Base
Victoria Green Base
Oil Colors
Fur Black
Fur Brown

Coal Tar Chemicals

The Company is manufacturing a number of coal-tar chemicals, which are used in textiles or other industries; among which are the following:

Aniline Oil
Aniline Salt
Beta Naphthol
Dinitro Phenol
Diphenylamine
Dimethyl Aniline
Hydroquinone
Meta Phenylene Diamine
Meta Toluylene Diamine
Nitro Benzol
Paranitraniline
Paramidophenol
Para Phenylene Diamine
Resorcin
Thiocarbaniline
Thiocarbtoluide
Thiocarbxylide

Intermediates

Among the intermediates manufactured by the Company are the following:

Amido Salicylic Acid
Benzidine
Chromotrop Acid
Dinitro Benzol
Dinitro Toluol
G Salt
H Acid
Koch Acid
Metanilic Acid
N W Acid
Naphthol Sulphonic Acid (1:5)
Ortho Toluidine
Phenyl Hydrazine Sulphonic Acid
Paramido Acetanilide
Phenyl Acid
Picarmic Acid
Pseudo Cumidine
R Salt
Sulphanilic Acid
Schaeffer Salt
Xylidine

Barium Products

These are manufactured by the Rollin Chemical Co. and among those regularly produced are:

Barium Chloride
Barium Carbonate
Barium Chlodire
Barium Nitrate
Barium Sulphate

Other products of this factory are:

Sodium Sulphide Conc
Caustic Soda

Textile Specialties

The Company also manufactures a full line of:

Textile Gums
Liquid Softeners
Sylphonated Oils, Single and Double
Soluble Starch

Gums

Arabic
Ghatti
Guaiac
Indian
Karaya
Mastic
Olibanum
Senegal
Tragacanth

Oils, Softeners and Finishers

Turkey Red Oil 85% and 50%
Tetrol
Sulphonated Corn Oil 85%
Softener No. 6, 8A
Nainsook Softener
Concen Size
Softener T
Soluble Tallow
Vegetable Tallow
Rosin Size
Ricinola Oil No. 50
Gelose
Para Soap

DYE PRODUCTS AND CHEMICAL CO., INC.

200 Fifth Ave., New York.

ANILINE DYES

For Wool

Napthol Green
Newark Scarlet (*Biebrich*)
Ponceau Scarlet
Acid Yellow
Chrome Blue Black
Chrome Brown
Copper Purple

For Natural Silk

Chrysoidine
Napthol Green
Newark Scarlet (*Biebrich*)
Ponceau Scarlet
Acid Yellow
Eosine

For Artificial Silk and Cotton

Bismark Brown (*Red and Yellow Shades*)
Chrysoidine
Eosine

For Leather

Bismark Brown (*Red and Yellow Shades*)
Chrysoidine
Newark Scarlet (*Biebrich*)
Ponceau Scarlet

For Paper

Bismark Brown (*Red and Yellow Shades*)
Chrysoidine

NOTES OF THE TRADE

(*Continued from page* 9)

Following the report that the Government had revoked a number of export licenses for caustic soda the tone in that product was materially weaker.

The Government figures that it can utilize all of the domestic production. In the meantime the shipments to Japan have been held up waiting future instructions.

JAPANESE PLAN THE MANUFACTURE OF INDIGO.

The Japanese plan to manufacture synthetic indigo in the near future, according to Professor H. Nishida, in an article in a Nipponese periodical. Professor Nishida reviews the development of the Oriental dye industry, stating that many plants have been established since the outbreak of the war, in the endeavor to produce the 12,000,000 pounds of dyes required in Japan annually, but most of them have had to close, owing to shortage of capital and lack of expert assistance.

The Japanese Dyestuff Manufacturing Co., which is subsidized by the government, has for some time past been working successfully, producing aniline oil and salt, phenol, orange II, benzo purpurine B., fast red A, and Congo red. A number of direct, basic and sulphur colors will shortly be produced. The Tokyo Gas Co., and the Mitsui Mining Co. have also met with considerable success, and are producing dyes on an industrial scale.

AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

Circulating Wherever Dyestuffs are Used

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Dyes Should Be Tested Before Acceptance

FROM what we said last week regarding the dyestuff "Gyp" it may easily be seen that his existence and prosperity lies in the hands of those who buy his goods. We made a distinction between the small broker doing a legitimate business in dyes and chemicals and the ones who never make deliveries equal to sample. It will be noted that the name is derived from the wandering horse-trader who leaves his victim sadder but wiser.

Reference has been made to that subject again in order to better impress on all the fact that dyes above all other commodities should be carefully tested before acceptance. Something has already been said by Government officials regarding the establishment of standards just as the druggists have their Pharmacopoeia which defines strength, purity and general properties. It takes official Washington a long time to arrive at its destination and much valuable time could be saved by independent work by the American manufacturers themselves. Today there is a scarcity of the old German types as standards of comparison, but the consumer can always ascertain whether the delivery is equal to the sample first submitted. It is true that it is difficult to place an accurate valuation on goods that have been reduced in quality without a standard or type, particularly when the reduction is only ten or fifteen per cent—not so much to the naked eye but an appreciable sum in the case of a high-priced dye.

A dyed skein of yarn is not a test, for a single dyeing can be manipulated to produce a shade much heavier than the practical results; there are several ways of doing this and still be entirely truthful regarding the percentage of dye used. No good and some harm might result from a further discussion of this subject.

It is also inadvisable to compare dyeings made at different times or by different dyers, comparisons are only valuable when the dyeings are made simultaneously under identical conditions. Such apparent trifles as different water, particles of metal, as for example an exposed spot in an enameled vessel, will cause a wide variation in the shade and strength of many dyes.

Dyes sensitive to acids such as Direct Reds, Congo Browns, Direct Blacks begin to change as soon as they are dyed. The reds and browns are kept on the alkaline side for sake of brightness, but the blacks are allowed to turn purposely. This takes several days and an old dyeing of a Direct Black appears a full bloomy shade in contrast with the thinner green slaty tone of a recent dyeing, which may really be a better dye. Sulphur dyes are slow to exhaust and all have different rates of speed in dyeing. The one that dyes a poor shade in the first kettle may hold out better in a standing bath and even then the final oxidation they undergo is often a matter of several days.

These examples might be extended to greater length but they will serve to show how helpless the consumer is in the hands of a dealer who intends to deceive.

The American manufacturers also come in for a share of criticism at times and we feel that something must be said in their behalf, for generally their shortcomings are due to entirely different

causes. Naturally every factory that is trying to make a reputation with the hope of continuing a successful business after the war realizes that the methods of the "gyp" will not answer, but everything depends on the quality and uniformity of their goods. They must go on manufacturing to utilize their equipment, yet often the batches will not come out equal to their best production either in strength or shade. They all have much to learn and time alone will correct the deficiency. There are orders that must be filled and cash must be gotten in so they yield to the temptation and send out what they have and say nothing, for if the consumer needs the dye so badly he probably will not complain. Now there are not so many of such cases after all and mostly among the new and smaller factories because the larger ones have been in the business longer and have everything running more smoothly. All of them have trouble at times with raw materials, and unless they have their own plants for making intermediates must struggle with lots that have some impurity that is likely to cause trouble of one kind or another. As soon as the war ends the best of all our coal-tar products will not be taken for explosives, and there will be a competition in quality to the great advantage of the dye industry.

Now the point for the consumer is this: whether he buys from a source where he suspects lowered quality or from a manufacturer he must know what he is getting and its relative value; his only safeguard is in careful testing of every lot delivered.

Notes of the Trade

The Penman Littlehales Chemical Co., of Spring and Free Streets, Syracuse, N. Y., manufacturers of chemicals, are planning for the construction of a new two-story steel and concrete addition to their plant at a cost of about $25,000.00. The structure will be about 75 x 110 feet.

The Reading Chemical Manufacturing Company, of Reading, Pa., has recently gone into the hands of the receiver. The company was incorporated in 1915 and was engaged in the manufacure of black and other dyestiuffs, also a number of pharmaceutical preparations. The plant will continue operations under the direction of Mr. Kramer, who has been appointed receiver.

The Nitro-phospho Corporation, of Newark, N. J., has been incorporated to manufacture dyestuffs and allied chemicals. The capital is something in excess of $125,000 and the incorporators are George R. Swain, John I. Sipp and C. Jacobs, all of Newark.

Webster & Company, of Philadelphia, Pa., have recently incorporated and will engage in the manufacture of chemicals and kindred products. The capital is $50,000. The incorporators are: M. Mills, John Kearns and C. A. Murphy.

The Southern Chemical Laboratory has announced a change of address to 321-323 Carter Street, Chattanooga, Tenn. The company was formerly located in the Wiehl Building and the factory was on East Missionary Avenue of the same city. It is hoped that the combination of factory, offices and laboratory under one roof will facilitate the company's ability to assist the requirements of its clientele.

John D. Lewis, Providence, R. I., manufacturer of chemicals, dyes and logwood extracts, has recently established a branch office in the Drexel Building, Philadelphia, Pa. The new branch will be in charge of Mr. George A. Street.

The Dunbarton Corporation of Brooklyn, N. Y., has been incorporated with $10,000 capital, to manufacture chemicals and allied products.

Caustic Soda.

One of the important factors in the spot market for caustic soda reported export sales of 300 tons to Japan recently and advised that he was in receipt of export permits for exportation for two lots, including one 200-ton lot and one 250-ton lot to Italy. It is learned that in addition to commandeering 7,000 tons of

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Inquiry Department

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Question: What are the best dyes to sell to a candy manufacturer which will be bright and yet non-poisonous?

Answer: While there are a great many dyestuffs that would answer the purpose, it is illegal to sell or use any except the eight that are permitted by the Bureau of Chemistry, Department of Agriculture. Even the use of the permitted colors is restricted to highly purified grades that have been certified after a test at Washington. The purification of such of these dyes as are at present obtainable is a matter of care and expense, but if you seriously intend taking up this branch of the business we suggest that you write the Superintendent of Documents at Washington for full information.

Question: Several dyers have told me that they prefer Indigotine from natural indigo to that made from pure synthetic indigo. Is this only prejudice, or is there a reason?

Answer: From a chemist's point of view the synthetic product is really superior, as it is purer. The dyer prefers the natural because it works better, *i. e.*, dyes slower and more level. The reason is simple—the small amount of impurities present in the natural product, somewhat retard the dyeing and the slower the dyestuff is absorbed the more it penetrates and the more level is the shade.

Question: What is the best way to dye Congo Red and have the shade remain bright for a reasonable length of time?

Answer: Congo Red is so sensitive to acids that even the carbonic acid of the air has a dulling effect on it, and the sulphurous acid from burning gas, coal, etc., turns it to a blue black very quickly. No permanent remedy has ever been devised, but if a dyer is forced to use it because he can get nothing else, it is customary to dye with soda and soap or Turkey Red Oil and whizz or wring without washing. The alkaline matter left in the cotton acts as a protector for a time, but as soon as the acids have broken down this defense the color darkens as usual. Dyeings which have darkened may be restored for a time by enclosing in a box containing ammonia vapor. In our opinion Congro Red has no place in a dyehouse, it has historic interest and is a laboratory asset, but cotton dyed with it is as good as spoiled and will be a source of trouble and argument as long as it exists.

Question: I have some dyeing recipes that call for the use of bichromate of potash, but as this is now so high in price and as I was told that bichromate of soda could be used instead, I would like to know how much of the latter to use to get the same effect, and is there any difference in the working of the two substances?

Answer: As bichromate of potash is free from water and bichromate of soda contains water, the percentage of chromic acid being higher in the soda salt, the problem would seem to require some calculation beyond the average consumer. Practically one so nearly balances the other that for all technical and manufacturing purposes no change in proportions is ever made. As the chromic acid, which is the active ingredient, is exactly the same in both, no difference is to be expected or has ever been observed. The soda salt, however, is deliquescent or hygroscopic, and when mixed with sulphuric acid forms a more soluble sulphate than potash and does not deposit crystals.

Question: Which American manufacturer is making the best Methylene Blue?

Answer: We do not feel that we have

a right to attempt to answer a question of this sort, but think that some of our advertisers will be willing to discuss the subject with you.

Germany Concentrates on Commercial Preparedness

To Establish Credits by Exports of Potash and Dyes.

A sudden dissolution of the economic organizations formed during the war might be very harmful to the economic life of the country, but methods of operation should, nevertheless, be modified in such a way as to permit coöperation on the part of the wholesale trade. If goods are to be imported by the Government, or by the industries, a necessity will soon arise to pay large sums of money to foreign countries. The wholesale trade, however, can make use of its own connections to obtain credit so that payments will be better regulated and more widely distributed. At the same time an effort should naturally be made to export, as far as possible goods of a high value, such as potash and dyes, whereby credits may be obtained abroad. The problem would be greatly simplified also by setting aside a large amount of gold for the use of the importers, if that can be done without injury to the German economic system.

Purchases Through Syndicates.

Purchases abroad should be made through syndicates, consisting of representatives of both industry and the wholesale trade. Trade might well be left wholly free, except for the provision that imported goods should be delivered to the syndicates exclusively. Shipping should also be represented in these organizations.

The Government should exercise a certain control over prices, particularly if it should appear that the centralization of imports by itself did not suffice to prevent a large increase in prices. For this purpose price-control bureaus may be established. Taking due account of the prices prevailing in the world markets, these bureaus would fix minimum prices for purchases for German account. In addition, a central organization should be formed to supervise the imports, so that importation may be limited to goods urgently needed, that no industry and no State may be favored at the expense of others, and that all dealings in foreign exchange by the syndicates may be passed upon by a central authority. If these measures be taken, the distribution of the imported goods may safely be left to the trade.

A Suggestion from a Manufacturer

Complaints have often been made of spirit soluble dyes in cases where denatured alcohol has been used. Several instances have shown that in the standard denatured alcohol, which contains methyl alcohol and benzine the alcohol and benzine evaporates together and as the liquid becomes concentrated there is a separation from the small percentage of water present which causes a turbidity and mottling of what should be a perfectly even and uniform surface. If a specially denatured alcohol cannot be used the only remedy is to use pure methyl alcohol.

A Permanent Dyestuff Industry

(*This article is continued from last week*)

I doubt if any permanent satisfaction could be obtained from a Government Bureau of Standards, such as has been proposed. We are tending too much towards a paternalistic Government, and are calling for bureaus for this and bureaus for that, the work of which is seldom as thorough and practical as when it is undertaken as a business proposition by the parties interested. I would recommend, as a means of establishing a ratio between standards agreed upon and the price at which goods should be sold, that the selling price should be per unit of color value. Then, no matter whether the dye was sold as a concentrated powder, or a paste containing 75% of moisture, no matter to what extent the color might be salted or otherwise adulterated, its relative value as against the standard would be fixed. It would be equally fair and effective for one manufacturer as for another.

A permanent board such as I have outlined could properly fulfill other functions besides that of standardizing colors. It could be the means of defending the standards so established. It could serve as a board of arbitration in all matters of dispute involving the question of quality or correspondence of deliveries to sample. Prompt and expert decisions on such matters would not only save time and endless expense in litigation—which under the legal rules of evidence no layman can hope to understand, and which seem designated rather to conceal facts than to bring them out—but would relieve the congestion of court dockets, which are in all industrial centres choked with cases of dispute as to quality of dyes delivered.

I have seen it stated that there are over 3,000 cases in the New York courts alone; all the result of the last two years' feverish conditions in the dyestuff market, and all waiting their turn on a docket which has swamped clerks and courts alike for decision.

This involves also the integrity of contracts, where questions of quality have been raised. A disconcerting disposition has been evidenced on the part of many manufacturers to cancel contracts which were entered into in perfectly good faith by the dyestuff manufacturers, whenever the market shows any tendency towards declining values.

In other words, a contract is, in many quarters, only regarded as a contract when it operates to the advantage of the purchaser. This is distinctly unfair and is an evil which is notoriously prevalent in many other lines and is one which is a distinct menace to American business.

It is quite evident that when a dyestuff manufacturer undertakes to supply a given quantity of his products to a manufacturer in, for instance, monthly deliveries for a period of time, he commits himself to certain responsibilities in the way of raw materials from which he cannot relieve himself at will and, therefore, a cancellation on the part of his customer may cause him very serious loss, to say nothing of the loss of profitable business on which he has counted. In 1915 and 1916, when it was a case of first come first served, contracts for dyes to be taken over a term of years at prices far above normal were eagerly accepted, and conditions were agreed to, which justified the description of the conditions in those two hectic years as "a seller's market."

So far, in the continued absence of strongly competitive conditions, these contracts have been lived up to fairly well, but as new firms come into the market, as methods of manufacture are improved and prices are reduced, there is a growing tendency on the part of the buyers to demand protection against a falling market. When the war ends and conditions of sanity are restored to the world, and when the tides of commerce again flow unobstructedly through the ordinary channels of supply and demand, human nature would have lost one of its most universal characteristics if there were no attempts to avoid the presence of contracts which had ceased to be bargains and had become burdens.

If, when these conditions confront us, we had an impartial expert board to which such questions of contract could be referred by the mutual consent of the disputing parties, when such disputes involved the question of quality as against standard—and this is the ground on which 90% of contract repudiations will rest—the trade would know that decisions could be reached intelligently and promply, and without the interminable delay of the law.

The third requisite for the permanent establishment of the industry is that the Government should accord an adequate degree of protection and efficient, well-administered laws against the "dumping" of foreign dyestuffs on this market at prices which are below the market prices in the country of origin.

When the war commenced the duty against dyestuffs was 30% ad valorem, and against intermediates 15% ad valorem. While this was a very considerable degree of protection it is evident that it bore most heavily against the higher priced and less used dyestuffs, while the ordinary colors, such as the standard blacks, blues and browns, retailed before the war at from 15c to 25c per lb., hardly felt the benefit of such an ad valorem impost. These are the colors which are in by far the largest bulk demand, and it was at once evident that when the time came to meet the relentless competition of the German manufacturers struggling to recover some of the lost ground and forfeited markets which insatiate ambition has inflicted upon them, it would be perfectly feasible for them to "dump" these cheaper colors on this market at prices which would defy competition, while making up their margin of profit on the higher priced colors which American dyestuff makers have not commenced to make, and possibly will not make for many years to come.

It has been perfectly natural for our manufacturers of colors to follow the line of least resistance, and to devote their initial effort to those colors which are in the largest demand, and which are the most easily made, but in so doing they have naturally exposed the new-born industry to attack on its most vulnerable side, unless the Government recognizes the necessity of sufficiently protecting its interests.

To some extent this has been done in the legislation effected last year. In addition to the 30% and 15% ad valorem duty, a specific rate of 5c per lb. on finished dyestuffs, and 2½c per lb. on intermediates was added, and a clause intended to prevent "dumping" was enacted into law, all of which was a long step in the right direction, and has given distinct encouragement to capital considering investment in dyestuff making developments. But it is not enough to place the industry beyond the danger of dangerous competition when normal conditions are restored. The bill introduced by Congressman Hill, which provided for a specific rate of 7½c per lb. on finished dyestuff, and 5c per lb. on intermediates, in addition to the existing 30% and 15% ad valorem rates, came much more nearly meeting the situation than the rates accorded finally by our Democratic Administration.

With their commerce at a standstill, their factories denuded of skilled help, and their financial systems disorganized, those European countries which have devoted themselves in happier times to the development of the science of dyestuff making, will leave no stone unturned to get back what they regard as their own, and in commerce, as it has been in mat-

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A PROPOSED NATIONAL ASSOCIATION OF CHEMICAL INDUSTRIES

The initial step in the proposed organization of an association composed of manufacturers of dyestuffs and allied chemicals, has been taken by a well-known color and textile expert of New York City. This gentleman knows the textile trade by years of close association with the machinery equipment of mills and any suggestions from him should receive the ready response that he solicits.

Even, though, he himself is now connected with a large chemical and dyestuff manufacturing company, we feel that personal motives did not influence him in taking this stand. Regardless of motive, regardless of the publicity this may bring his particular company, let us accept his suggestions in good faith. Let us not dissect the plan in a search for an indication of a desire to win self-made glory, but let us accept this in a spirit that should influence the thoughts of those who really do want to see the industry prosper.

We, personally, know the months of patient effort that was necessary in obtaining the facts that influenced the formation of this plan. We know that the plan does not indicate the narrowness that would attend it were the motive one of self-glorification. We feel that it was prompted by a desire to be of material assistance in furthering the progress of the industry. Our stand regarding the necessity of organization and co-operation was dwelt upon at length in previous issues of the American Dyestuff Reporter, but we do not intend to lay claim to any credit for influence we may have wrought, should the plan now submitted by this gentleman be accepted.

A publication should co-operate in practice as they in theory advise the manufacturers to do and not try to win the praise of their readers by assuring them that, "this plan was given publicity by the writer in this particular trade paper only and that in the spring of the year the initial step was taken by this paper, etc."

You, as a consumer, want facts and a publication cannot talk co-operation and organization and themselves practice monopoly.

The plan as outlined below was preceded by the following letter, a copy of which was sent to all actual manufacturers of dyestuffs and allied chemicals, the names of whom were then obtainable:

New York, October 20, 1917.

Dear Sir:

I have been requested by a number of gentlemen interested in the manufacture of American dyestuffs, to take the initial step looking to the convening of a conference at which the question of the standardization of American colors can be discussed.

I feel that there are others in the industry who have been identified with it for so much longer than I have that some one of these could more properly take this preliminary step but in order to bring the matter to an issue and to give the industry as a whole a chance to meet and discuss this important and vital question, I have decided to act upon the requests that have been made.

May I suggest that a meeting be held, preferably in New York as being the most available centre for all interests, during the week of January 21st, 1918?

I should be pleased to hear from you as to whether this is in accordance with your ideas, and if so, whether this time will be as suitable to you as any other. Upon hearing from all those interested, or as many of them as care to reply, definite steps will be taken to organize this meeting. I remain, your faithfully.

The Plan as Outlined for Discussion

"A meeting of manufacturers and dealers throughout America should be called for the purpose of effecting a permanent association. The initial meeting could be held at some convenient place to be decided upon by a temporary committee. A temporary chairman could be chosen after which there would be a general election of officers and directors. A suitable name could be selected and there would come into being an organization which would be a real benefit to the dye manufacturers as well as to the dealer.

"The next step would be to elect a board of arbitration, which would be composed of three chemists and two business men. Five is suggested so that there would be a majority vote in close disputes. This Board of Arbitration would meet regularly, say twice a month, when all matters in dispute would come up for discussion and would be thoroughly thrashed out with justice to all concerned. The decision of this Board in all matters would be final and all members of the association would be expected to abide by the decisions. Of course, it would be possible to take the disputes into the courts, but this is an expensive and slow method of settlement. One of the biggest functions that would be accomplished by the association would be the quick adjustment of grievances which are constantly being fought out in the courts.

"All dealers and manufacturers would be eligible for membership in the national association and the standards set by the Board of Arbitration would be fair to all concerned. If it should happen that a manufacturer did not live up to the standards set by the association, he could be expelled. In this way the illegitimate dealer would soon be forced out of business."

NOTES OF THE TRADE

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caustic soda for the Aetna Explosives Co., the Government has now commandeered another lot of 5,000 tons for the Newport Hydro Carbon Co. Further quantities are expected to be commandeered by the Government for picric acid manufacture. The munitions manufacturers are receiving their caustic soda at a price less than half the current spot quotation, or at $3.75 a hundred, and the theory is advanced that supplies for consuming wants will thereby be restricted. Consumers who bought caustic soda expect to have their deliveries cut down pro rata to the quantities delivered to the United States Government.

German Controlled Patents

AT its recent semi-annual convention the National Association of Cotton Manufacturers by resolution earnestly urged our Government to take over, so long as the war shall continue, the dyestuff patents held here by German subjects. Such action was taken in England some time ago. The proposed confiscation would not involve injustice. Patented processes would be used by our manufacturers under leases, providing for such control and accounting as, in the words of the resolution, "will assure fair compensation to the present owners at the close of the war." Our Government is now about to take great sums due here to creditors and investors in Germany, with stores of cotton and metals bought by Germans before we entered the war. The value of what will be seized exceeds $200,000,000. Liberty bonds are to be bought with the money and the other property will be sold or used under Government supervision. After the coming of peace Congress will say how the ac-

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A Permanent Dyestuff Industry

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ters military, anything is justifiable where a struggle for existence is involved.

It is, therefore, evident that those who realize that the dyestuff industry, as a permanent unit of the industrial organization of this country, is an indispensable necessity, should use every effort, individual and corporate, to obtain for it the Congressional influence which will give it a fair chance to exist through the days of its incipient growth to a self-supporting and independent maturity.

And now, may I say a word with regard to natural dyestuffs in contradistinction in artificial dyestuffs? As I have stated, prior to the war, natural dyestuffs provided possibly 10% of the color requirements of our manufacturers, the two chief items of utility being Logwood, with its blood relation, Hematine, and Fustic.

The tidal wave in the use of natural dyestuffs which was thrown up in 1915 and 1916 by war conditions and the suddenly enforced shortage of synthetic colors, has subsided, but in its recedence it has unquestionably left the level higher than it was prior to 1914.

It has been computed by reliable authorities that from now on, for at least many years to come, natural dyestuffs will stand in the proportion of about 25% of the whole color requirements, leaving 75% to be supplied by the artificial dyes.

This has been made possible by the painstaking research of chemists and dyers who have devoted themselves during the past two or three years to the development of new methods of using natural dyestuffs, the discovery of new mordants and new methods of combining mordants, as well as in the perfecting of new sources of color.

In the dyeing of the various fibres, and especially in the dyeing and weighting of silk, and the dyeing of leather, natural dyestuffs occupy a field of usefulness all their own, and into which artificial dyestuffs will probably never trespass.

This is, perhaps, less marked in regard to cotton than any of the other fibres, as the great quantities of sulphur black and direct black which have been produced have killed one of the chief uses of Logwood, while direct browns, blues and yellows are also available in large quantities.

One illustration, based on the necessities of the times, may be given as typical of the real service which natural dyestuffs are rendering, when properly used, to the manufacturing interests of the country. For many years before the war, the dyeing of khaki for military uses, for boy-scout cloths and for sport goods, was effected almost exclusively by the use of artificial dyestuffs. Direct colors, sulphur colors and vat colors were employed according to the various requirements as regards fastness to light, soaping, acid and other tests.

With the instantaneous cutting off of foreign supplies of these dyes, and before similar colors of American manufacture became available, our manufacturers were forced on to the use of natural dyestuffs with at first, it must be admitted, more or less indifferent results.

Quick and economical dyeing with the apparatus which alone was available seemed hopeless of accomplishment, while a sufficient degree of fastness to light exposure presented a formidable obstacle which the experience of previous generations of old time dyers with natural dyestuffs did not seem to offer much encouragement for surmounting.

One of the triumphs of the last two years has been the way in which this problem has been met and solved, and today many of our boys in National Army encampments are unknowingly thankful for softer, heavier and warmer cloth, dyed with natural dyestuffs, than would be the case with the same cloth dyed with direct or sulphur colors. In explanation of this statement, which may be received with some surprise and question, let me say that on a regulation 2½ yard cotton twill, natural dyeing will give an addition of from 10% to 15% in weight, this being a permanent and not a temporary addition, while the finish of a piece of khaki dyed with natural dyestuffs—and again I make the stipulation of proper handling—is softer and less irritant to the skin, at least, than with sulphur dyes.

The discovery of new, quick acting mordants has made jig dyeing possible, and the latest development, with natural dyestuffs alone, has been a method of high speed, continuous dyeing in a padding machine, the cloth running from this machine directly over the dry cans, at a speed of from 80 to 100 yards per minute, and giving results which are eminently fast to soaping, soda and reasonable light exposure.

One of the concomitants of this new method of dyeing khaki is the universally useful Osage Orange already mentioned. This is an extract obtained from our own Southwest, and which is used for making wagon felloes, and in the more immature growths for ornamental hedges and other humble purposes. In characteristics it is almost identical with Fustic made from wood growths obtained in Cuba and Mexico; the coloring principle, morintannic acid and maclurin is the same as Fustic, and with the same mordants and with the same treatment it gives almost identically the same results. In one important respect it differs from Fustic in that it is free from the cloudy red shades which are typical of the Mexican Fustic, and are not infrequently found in the Cuban yellow wood Fustic, and which cause muddy and indeterminate results in dyeing. Osage Orange will work with any other natural dyestuff and with practically any artificial color, giving the extensively required yellow value which forms the basis of so many popular shades, and is equally serviceable on cotton, wool, silk, felt, paper, leather and wood. It is hardly too much to say that it is the most useful kindly and best natured member of the color family, yielding full measure in satisfactory results for any degree of proper treatment.

Striking results, too, have been accomplished in the use of Hematine for securing Denim Blues, which show a degree of fastness to domestic washing which is far superior to that obtainable with Indigo, as well as offering a reasonable fastness to light exposure; while Quercitron and Fustic occupy assured positions of which they will never be deprived by any development of the artificial dyes.

It is only by the light that has been thrown, during the war, by the German Government on German methods, that we can now read the sinister meaning of the commercial operations carried out by German merchants all over the world for many years before the outbreak of hostilities. Their propaganda contemplated the industrial subjection of the nations just as surely as their military system planned the political and social domination of the world. The collar of industrial serfdom was being prepared for our national neck just as surely as it was intended for that of England as well, and we can see now how nearly, as far as dyestuffs are concerned, the last rivets were to being in place, and how close we were to a condition where we could never get from under German control of our color-using industries.

Most of our old-time expert dyers had been driven out of the business and their places taken by a generation which knew their colors mostly by distinguishing marks or numbers and were accustomed to get them in condition ready for use and requiring no particular knowledege for their employment. Many of our dyers were yoked with German dyestuff houses by bonds of which, perhaps, the mildest comment would be that they were not honorable, while the thoroughness of research, the patience in working out technical problems, and in codifying in shade cards and books the properties of the dyestuffs and the methods of their applications, received our unstinted admiration, even while we were unconsciously coming more and more under the spell of the German system.

We now have an opportunity of utilizing the lessons we learned during the years of our slumber. It must not be supposed that the first peals of the bells of peace will open our ports at once to the advent of new supplies of German colors. The complete destruction of German commerce which the mad ambition of her military class has imposed upon her will require many years for its restoration, and it will be generations before she can regain the good will of—or rather live down the hatreds which she has deliberately awakened in—the civilized world.

British Dyes, Limited, Huddersfield, England, has applied for licenses to use thirteen patents for dyes belonging to the Chemische Fabrik Griesheim-Elekton.

German Controlled Patents

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counting shall be made. The owners will not be robbed, but this money and the products must now be used in war service. German patents should be added.

In the last three years a great dyestuffs industry has been created here, and its products take the place of those formerly imported from Germany. Of many dyes, the necessary kinds, we are making enough to satisfy the demand, and of some there is a surplus to be sold abroad. American chemists solved a very difficult problem. There are colors, however, for the production of which the German patented processes or formulas are required, and if what is covered by all the patents is made available, aid will be given to those who are now working without the use of them. The new industry will be permanent and successful if the patented field shall remain closed, but it should be opened, with proper safeguards, for the benefit of manufacturers and the American people. German owners, foreseeing just compensation for the use of property now idle, may not object to what is called confiscation, because that is a convenient term. Their disapproval, however, should have no weight with our Government. Manufacturers here should be permitted to use the patented processes.

Dyestuffs and Chemicals that are Actually Obtainable

We suggest to our readers that they carefully preserve these lists, as in their complete form they will give a full and complete record of the sources of supply of all dyestuffs and chemicals manufactured or handled by reputable American companies.

Owing to the number of companies who are now concentrating on Khaki, this list will include only the colors that are being manufactured at this time.

WILLIAMSBURG CHEMICAL CO.
230 Morgan Ave., Brooklyn, N. Y.
Sulphur Black
Malachite Green
Auramine
Sodium Permanganate
(in solution)

ALLIANCE CHEMICAL CO.
176 Federal St., Boston, Mass.
Fast Chrome Red
Fast Chrome Green
Fast Chrome Yellow

J. S. YOUNG & CO.
Hanover, Pa.
Yellow, Blue and Black
Natural Dyestuffs for Cotton, Wool and Silk

ATLANTIC DYESTUFF CO.
Burrage, Mass.
Sulphur Blacks
Sulphur Browns
Alizarine Yellow Powder
Alizarine Yellow Paste
Direct Blues
Direct Greens
Azo Fuchsine
Chrysamine

JOHN CAMPBELL & CO.
75 Hudson St., New York City
Black Ex. Comc. Silk White
Yellow C. Silk White
Brown 6 G
Brown B
Green C Silk White
Blue S. W. Silk White
Red B

What England Is Doing in the Dyestuff Industry

(*In previous issues of the* REPORTER *we have tried to show what America has accomplished in the industry and now for comparison, we outline the activities of England.*)

DYEWARES IN ENGLAND

(*A Report by Consul Augustus E. Ingram, Bradford, October 3d.*)

The (London) *Times* Trade Supplement for October, 1917, has an article on chemicals and dyewares which aims to show that better supplies of dyestuffs than formerly are now available in this country. It states that undoubtedly there has been a distinct improvement from every point of view. "In certain quarters," it believes, "there has been a disposition to make insufficient allowance for the known difficulties of our few firms of color makers, but the veriest grumbler has now to acknowledge a betterment in quality, quantity, and the range at disposal. The main difficulty has been the intermediates; once these are provided dye making is a comparatively easy matter. Apart from the practical knowledge required to produce them, a very expensive plant is needed to provide even a moderate range. The dye makers have been increasing both the range and quantity of intermediate available for dye manufacture. This is evident from the fact that useful members of several classes of dyestuffs of known difficulty in manufacture have been put on the market."

Recent Developments in Production.

The paper reports that British Dyes (Ltd.), in addition to the vat dyes reported last month, has brought out some new direct cotton colors. It has always been able to put excellent sulphur colors for cotton on the market, and the latest gives a sky blue of which the cotton dyers were short. Levinstein (Ltd.) is prepared to supply a brand of artificial indigo, Indigo LL, immediately and in any quantity, and also some new and useful direct cotton and acid wool dyes. Direct cotton colors, acid wool dyes, also serviceable in silk dyeing, and the sulphur dyes which have become so important in cotton dyeing are in good supply from many sources, and as the tendency is toward an easing of price, the outlook for the color consumer is declared to be promising. The *Times* Supplement continues:

The market for natural products is also much easier. There is an abundant supply of logwood in all its forms, and also of the other dyewood extracts. These are chrome mordant colors, and are assisted by the relatively low price and good supply of bichromate of soda. The artificial chrome mordant colors, a most important class in wool dyeing, are almost off the market, and this has a tendency to keep down the price of the chrome salts. Some dyeing matters, such as ripe fruit of various sorts, blackberries, sloes, and plums, which have long had local and domestic uses, have latterly found commercial employment on a small scale. For instance, a London firm has obtained fair results with 5 tons of ripe blackberries gathered in Essex. This is a seasonal trade, however, and may be looked upon as a war-time eccentricity. Generally the position of the color consumer has greatly eased, and this is to the credit of the color suppliers, who have faced a difficult problem with considerable success.

Many Essential Colors Still Lacking.

In the Yorkshire *Observer* of September 27, an article entitled "Future of the British color industry" states that, while the progress made in building up a British coal-tar color industry has been creditable to all concerned under the limiting industrial conditions of a world-wide war, it must be admitted that they have not been adequate, presupposing an early termination of the war. It adds that many of the most essential bread-and-butter colors of the dyeing trades are still lacking. "A formidable list of these could be made out," it states, "but it will suffice to mention only a few by way of illustration. Three years have elapsed since the outbreak of war, yet no color of the Diamond Black group of British manufacture has been put upon the market, despite the fact that the consumption of this class of color runs into hundreds of tons per annum in the dyeing of slubbing, wool, fur for hats, and carbonized shoddy." It continues:

The BH type of direct cotton black is probably the most widespread cotton color in the dyehouses of Great Britain, which necessarily means an enormous annual consumption; yet no adequate British production has yet been put on the market. The FF type of direct cotton sky blue is certainly as important to cotton dyes as BH black; yet no British production has appeared on the market. Direct cotton reds and pinks fast to acid are in the same position.

Patent blue, which is absolutely essential to the wool dyer, and is of almost universal consumption, has yet to be put on the market by a British firm.

Rhodamin 6 G, which is of such importance to the calico printing trade for rose-pink illuminations, etc., has yet to be made in Great Britain.

Demand for Old Range of Colors Predicted.

That article also contends that while merchants are accepting what they can get, and the public is reconciled to taking what is offered, it would be the height of folly to think this acquiescence will continue when hostilities cease. "Nothing is more certain," it says, "than that the public, through the merchants, will demand when peace is restored the old range of colors with guaranties of the pre-war standard of fastness." Its prediction of future development is:

It must always be remembered that the trade has been so busy in supplying the enormous demand for khaki wool and cotton goods that the demand for the ordinary and fancy colors has been very much less than it would have been had not khaki occupied so much of the dyers' time. Immediately the demand for khaki ceases—that it will be at short notice is indicated by the "break" clause in khaki contracts—merchants and manufacturers will at once devote strenuous efforts to recovering their ordinary trade. This will immediately react upon the dyers, who will at once be pressed for a full range of pre-war colors, and the dyer who has the largest range will get the most trade.

Unanimity of Dyeing to be Tested

It is then that the strength of the oft-expressed sentiment, "We have done without the German colors for three years; I don't see why we should not do without them for good," will be really tested. It is then that the unanimity of the dyeing trade, a feature which has never been very prominent, will be tested to the utmost. Assuming that German colors may be bought—a very uncertain factor—if one firm begins buying colors of German origin, then other firms will have to follow as a matter of self-defense in order to retain their connections.

Rules Regarding Trading With the Enemy

THE WAR TRADE BOARD
WASHINGTON, D. C.

In consideration of the issuance to us of the license or licences for which application is pending before the War Trade Board, permitting shipment to us or to branch houses or agencies in countries other than the United States, we do hereby represent, declare and agree as follows:

1. That none of the articles contained in any of the shipments for the licensing of which applications are pending, will be directly or indirectly re-exported, or sold, transferred or delivered, either in their present or any other form, contrary to the engagement herein contained.

2. Neither we nor any of our branches or agencies are now engaged in exporting, re-exporting, selling, trading or doing business contrary to the terms of this engagement; and we declare that during the continuance of the present war we and none of our branches or agencies will export, re-export, sell, trade or do business, directly or indirectly, with any enemy or enemy ally as herein defined, to wit:

(a) Persons or associations of persons residing in any country or ally of any country, with which the United States is at war, including any territory occupied by the military or naval forces of such enemy or enemy ally nation.

(b) Any such persons or associations residing outside of the United States and doing business within such enemy or ally of enemy territory.

(c) Corporation incorporated in any country or ally of any country with which the United States is at war, including territory occupied by the military or naval forces of such enemy or enemy ally.

(d) Corporations incorporated in any country except the United States and doing business within such enemy or enemy ally country or territory.

(e) The Government of any nation or ally of any nation with which the United States is at war, or any political or municipal subdivision thereof, or any officer, official, agent or agency thereof.

(f) Such other persons, natives, citizens or subjects of any country or ally of any country with which the United States is at war (other than citizens of the United States) wherever resident or doing business, as may by any Presidential proclamation be included within the term "enemy."

(3) And we engage not to sell or deliver, directly or indirectly, or trade, or engage in the doing of any business with enemies or enemy allies, as herein defined, or for or on account of, or on behalf of, any such enemy or enemy allies during the continuance of the present

war. And this engagement and declaration includes all exporting, trading and doing business and shall not be construed as limited to the goods or articles described in the pending application for license.

(4) No sales or deliveries of any of the articles constituting such shipments shall be made without having first obtained the written approval of the United States Consul at the place where such sale or delivery is to be made.

(5) This is a continuing obligation upon our part and shall apply without further agreement to all future shipments.

Government Advises Immediate Preparation for World Trade

War Service Committees Should Be Appointed by Various Trades

Washington, D. C., Oct. 10.—To bring about immediate action by American business on the resolution passed at the recent war convention at Atlantic City recommending that each industry form a committee to represent that industry and to serve as a connecting link between it and the Government, suggestions are given in a war bulletin issued by the committee of the Chamber of Commerce of the United States co-operating with the Council of National Defense.

To the established business of the country, the bulletin declares, it is vital that the vast requirements of the Government for material and labor be met in a manner to interfere as little as possible with essential industry and in a way to maintain as far as possible in these abnormal times the normal structure of business.

"Many lines of industry are seriously affected by inability to get necessary material or labor and face serious problems for the future in connection with the shifting of labor from on community to another. Because these are problems, not only of the individuals in an industry, but of the industry as a whole, the industry should organize and act in the common interest. These are problems not only of business but also for the Government because it is essential to the winning of the war that the industrial life of the country be maintained in sound condition.

"Furthermore the Government to procure war materials and supplies in the vast quantities required, needs the advice and assistance men having thorough acquaintance with each industry.

Cotton Manufacturers Urge Immediate Steps to Seize Dyestuff Patents.

Resolved, That The National Association of Cotton Manufacturers earnestly urges the United States Government to take immediate steps similar to those taken by the Government of Great Britain to confiscate for the period of the war certain patents on dyestuffs held in this country by subjects of the German Empire, thus permitting their manufacture by reputable American dyestuff manufacturers under a system of leases, or by some other equitable method of control, which at the close of the war will assure fair compensation to the present owners of the patents.

AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

Circulating Wherever Dyestuffs are Used

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A Thought of the Future

WE may divide dyestuff factories of the present time roughly into two classes—those who are only intent on making as much money as possible at present and do not care whether they scrap their plant after the war or not, and the other class who are trying to build up a business on a firm foundation and fight it out with the Germans after peace is declared. Not only will there be a commercial war with our present military foes but the entrance of the highly capitalized explosives companies and, it is hinted, the oil interests will make a great deal of competition that can only result in one way—the survival of the fittest.

During this period we are enjoying a season of good profits and have nothing to fear from foreign competition. Those of us who were in the business before the war know what that competition means, it was the forerunner of "schrecklichkeit" and we cannot be too sure that it will follow the kaiser to St. Helena, Siberia or Isle du Diable; whichever they decide upon. Now we have a chance to build our fences, dig our commercial trenches and drill our forces for the commercial war that is inevitable. We will have in addition to the German dyes, who are now firmly consolidated, the Swiss and the government-frostered British factories operating under suspended German patents and subsidised by their government. After the war they will not be able to dispose of the entire output at home and we may expect to see them offered here.

Some of the small factories frankly say, that they expect to quit soon after peace is declared, because with the inadequate support from our own country, their capital will not be sufficient to keep up the fight. This same reason, (not expressed, however,) has much to do with the reluctance of the larger factories to take up the more complicated processes and make the higher priced colors. There is a chance of holding out with the staple dyes but if foreign firms are to be permitted to hold American patents, deny us shop rights, and pay only a nominal duty, which is to diminish year by year, capital is foolish indeed to invest in an uncertainty when business can be had now and money made on the common staples.

In order to prepare for all forms of competition, fair and unfair, it is not too early to start now. Those who are comparatively new in the business must not think that selling dyestuff means only advertising, sending out list of samples and then deciding what part of the orders received shall be filled. It does not mean that the customers will be so considerate that they will accept any plausible explanation regarding some slight deficiency in the colors. It means, if the past is any guide for the future, that a great deal of good money will have to be spent in advertising, in salaries for the highest class of salesmen, in large expense accounts for these salesmen, in sample cards, in a laboratory for special work to be done for the customers and in control of the output, beside demonstrators to assist the salesmen, not to mention many other unlisted incidentals. All this will be required because the competition will have this equipment, and experience beside. Then with all this the salesmen will work day and night to land a single customer, and customers, where the dem-

onstrator has worked for weeks to show them how to use a new dye or process, will be found to place their next order with another house on account of a difference of a cent or two a pound in price. (If it were not that innocent parties would be compromised we could give several actual cases supporting this statement.)

Products Must Be Standardized

The only way that the new business can be held in the face of such competition as we may expect is by service. Our products must be equal in every way; they are now often superior, but the deliveries must be kept absolutely uniform. When business is on a strictly square basis there is nothing so trying to the dyer or user, as an irregular lot of color and he cannot be blamed if he prefers to deal with a house that is dependable.

No factory can make dyes absolutely uniform, like books and moving picture films, they must be edited i.e. standardized. The safest way to do this is by mixing the output of a fairly long period, which gives a fair representation of the factory output which is not so hard to duplicate. At present the average small factory, in taking up the manufacture of a new color, has at the initial performance the head chemist, who gives it particular care or uses a lot of raw material that is supposed to represent what they are going to get in the future. The result is that the lot turns out extra fine and is made a type—future lots seldom come up to this lot, many have had this experience. There is always a temptation to sell an extra quality batch and make it the standard and when the regular run fails to come up to this standard to doctor and patch it up somehow. A lower standard with greater uniformity and conformity would be better appreciated by the customer.

The customer should be educated also and shown that it is more to his interest to use the American types as they are and not require them to be shaded and touched up to match some foreign type. Any dyer who is worthy of the name can use colors in combination, when they are near the shade he requires, providing they have the necessary properties, but the one who demands an exact match for the foreign product he is using is confessing his lack of ability.

Before the war, the importation of dyes offered a fine opportunity for fraud, if any of the foreign houses and their American branches had been other than honorable gentlemen. Concentrated products could have been sent over and billed as single strength and the duty thereby divided by four or five. Then there could have been places where the reduction to type was made and they could have easily undersold the American product or the Swiss import. After the war, there should be a man who really knows dyestuffs at every appraiser's store in the custom service, to simply remove the temptation, as it were. It would be unwise to say that this actually was done because direct proof is lacking and it is unjust to condemn anyone on circumstantial evidence, but that does not prevent anyone having their own opinion.

Not Written in a Spirit of Criticism

The foregoing remarks are not offered in any adverse spirit of criticism but to suggest, what may be expected and to point out the weak points where the enemy will most likely attack. At the present time the entire organizations of the German branch houses all over the world are trying to hold together, keep their customers and a nucleus of sales force, so that as soon as they are able to begin again on the old basis, they will have a veteran army to confront those who are now content to go on making money out of the present opportunity and not preparing for the future.

One large organization has been perfected and is in readiness, those which will come later will need to learn a few things that cannot be worked out in the laboratory, but the small factory of today need not pass out of existence if it will settle down to making high grade goods of any kind at all, but which are the best of that kind and noted for their uniformity. Before the war Dr. Remy at Crefeld, made and did a large business in Malachite Green and Methyl Violet with the result that many of the large factories preferred selling his products, to making them themselves. It is always better to do one or two things and do them well, than to have an extensive line of second rate productions.

After all this the greatest thing is a *protective tariff* that will give the necessary confidence to capital and after the world has been made safe for democracy, will make the United States safe for business.

The Situation in Chemicals

The government has taken 12,000 tons of caustic soda to be delivered within the next six months. This represents only a small part of what is to be commandeered and we are informed by the officials at Washington that within the next six months 20,000 tons of caustic soda will be demanded of the manufacturers by the Government. The price on the soda commandeered by the government has been less than two times what caustic soda has been selling for in the open market.

Dealers acknowledge that the commandeering of such large quantities of caustic soda has created an unusual situation since regular customers, who have brought their caustic soda at a price ranging from 21½c to 31½c a pound will find their deliveries cut down pro rata to the quantities delivered to the government.

Immense quantities of caustic soda will be required by the government for converting the Benzol that comes from coal tar into carbolic acid and then the carbolic acid into picric acid by treatment with nitric acid. In view of this demand the Government has revoked permits for shipments to various countries, including Japan, Spain and Italy. Japan consumption in this commodity during the first nine months of the current year amounted to something over 33,000,000 kin and now that the embargo has been placed, it is doubtful whether Japan will in the immediate future, be able to receive any quantities of caustic soda worth mentioning.

We are informed that the opinion is current among certain dealers in the trade that Japan may be included among the Allies, who are to receive caustic soda at the price fixed by the United States Government. There has been little activity among dealers in this particular commodity, but large orders have been booked by various brokerage firms.

Following the President's edict placing caustic soda and other technical chemicals on the list of prohibited exports, there was a decided slump.

The situation in soda ash has been materially weakened with offerings coming out for November and December. Spot goods are still held in some quarters.

Trade Board Permits the Use of German Patents

Include Dyes, Drugs, and Mechanical Devices—Interests of the Inventors Guarded

Washington, Oct. 30.—The vast store of German scientific information in this country was opened today to American manufacturers in regulations issued by the Federal Trade Commission, under which enemy-owned patents and copyrights will be licensed for manufacture by citizens of the United States.

When the regulations had been made public the commission met a group of medical men to consider licensing the manufacture of certain drugs, principally salvarsan, used in virulent blood diseases, and non-toxic substitutes for local anaesthetics, of which the supply in this country has run dangerously low since the war interrupted commerce.

Approximately 20,000 patented and copyrighted articles are said to be affected by the commission's order. *These include dyestuff formulas of vital importance to American industries* and mechanical devices of wide use; but the humanitarian effect of the order attracts the widest attention. German thought for many years has been active in medical research, evolving remedies for disease and for alleviation of pain, all of which, patented in the United States, will now become available to end suffering in this country.

Conferring with the commission today, with Commissioner John Franklin Fort presiding, were Julius Stieglitz, of Chicago, president of the American Chemical Society; Oscar G. Ruge, Assistant Surgeon, U. S. N. and others.

(*Continued on Page* 7)

Inquiry Department

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Question—Why is the Malachite Green now being offered by American manufacturers a bronzy powder, while the old German types were all in flat greenish crystals.

Answer—There is no difference in the color base itself but in the dye salt which forms the finished product. The old type was the double Oxalate of Malachite Green base and Zinc, while the present product is generally the Hydrochloride of Malachite Green base. The scarcity of Oxalix acid accounts for our not seeing more of the older variety but as the solubility is superior there is little doubt that in time the crystals will make their appearance on the market again. In case the powder gives any difficulty in dissolving (through partial loss of its acid) it is necessary to add a little Acetic acid to the solution but insolubility on account of tarry impurities cannot be corrected in this way.

Question—While there are many direct cotton dyes being made, we hear very little of union colors. What is the nature of a union dye and how do they differ from direct cotton dyes.

Answer—The union dye is first of all a direct cotton dye which just happens to produce the same shade of both wool and cotton. The number of colors that would do this of themselves was always very small for most required a careful regulation of temperature and generally dyed the wool several shades redder than the cotton. To correct this deficiency it was customary to add a small amount of neutral-dyeing wool color that would make the two fibres dye about the same shade but at present there is a lack of the necessary neutral dyes and though most of the direct colors on the market, dye unions fairly well, it is not so easy to get a solid shade on mixed goods. The dyeing of unions is therefore put up to the dyer himself and not much is said of ready-made union colors.

Question—What are the necessary features for an Alkali Blue to have in order to be suitable for lake making. Several lots that were considered fine for dyeing were rejected by a lake maker as being unsuitable.

Answer—The lake maker usually requires that an Alkali Blue shall precipitate clean and wash clean after using Sulphuric acid as a precipitant. This means that it shall consist entirely of the Mono-sulphonic acid and not contain any of the Di-sulphonic acids or higher sulphonations. If soluble Blue or Cotton Blue is present it might pass very well as a dyeing color for the slight lack of fastness would not be noticed, but in a lake the smallest amount of soluble color would bleed out, especially when used on a wet stone in lithographic work and a sharp impression would be impossible. You may test a sample by addings some Sulphuric acid to its solution and dropping some on filter paper. If the color precipitates sharply, the drop will form a spot of deep color with a clear wet ring around it but if any soluble products are present the ring will be tinted pale blue.

Reports on the Dye Market

There is a marked increase in the materials which entered into the manufacture of dyestuffs and there is a possibility that higher levels may still be reached. It is reported among manufacturers that there is a heavy movement taking place against outstanding orders, but perhaps most of the activity can be traced to the immediate demand for Khaki colors.

It is reported that the trade is awaiting with interest the arrival of a large consignment of dyestuffs from Switzerland, but this seems to have little or no influence on the general market, although some of the items on the list are weaker, including Matanil Yellow and Congo Red. Patent Blues are to be had in limited supply and the price will necessarily be the same.

A number of foreign inquiries have been received for Benzol and a level price for this commodity has been maintained. There has been an upward tendency in Naphthaline an several of the other basic products.

The Government has notified the various producers of tuluol to report to it their production as it develops, so that in any emergency supplies for purposes of making T. N. T. may be commandeered.

Trade Board Permits the Use of Patents

(*Continued from Page 4*)

The discussion at the conference covered questions of manufacture, of control of the product, distribution, and price. It was said to be likely that any licenses issued for the manufacture of salvarsan would carry a provision that a certain percentage of the output be turned over to the public health service.

Whether prices for drugs manufactured under license would be determined by the commission was not announced, but it was intimated that the commission would safeguard the public against exploitation. The Trading with the Enemy Act, by authority of which the patents and copyrights will be taken over, confers on the President, who has delegated the Trade Commission to carry out the law, power to fix conditions of licensing which might be construed as authorizing limitations of prices if the public welfare demanded it. Prices of drugs have undergone tremendous increases since 1914, many having increased as much as 1,000 per cent.

The regulations issued today follow the law closely in safeguarding the interests of patent owners, who must be reimbursed for the use of their inventions, and provide that licenses will be issued only where the interest of the public demands it, to supply a demand not now being met. The licensee must give evidence of ability to manufacture the article.

When the commission will issue licenses for manufacture of articles patented by enemy aliens or their allies probably will depend on the time required for American producers to meet the license requirements.

War has caused an anomalous situation in the Patent Office, where the number of applications for patents on war devices increases daily, and the fear of giving valuable information to the enemy is causing the withholding of patent rights to scores of inventions.

Patents Commissioner Newton announced today that the bureau within the last few weeks had refused patents to about sixty war inventions, acting under the recent law giving the Federal Trade Commission and the Patent Office authority to prevent publication of patents which the enemy might use.

A corps of West Point and Annapolis graduates, trained in the technical problems of war, scans the thousand or more patent papers issued weekly for details of military significance, and chooses those on which patent proceeding should be suspended during the war. Inventors thus deprived of patent rights may offer their devices to the Government, and sue after the war for compensation.

Nearly 200 applications for patents from German citizens also are pending. Commissioner Newton is postponing action until he can learn whether Germany is granting reciprocal rights under an act extending for nine months the time in which foreign applicants for patents must apply in the United States, normally one year from the issuance of a patent in the foreign country. The State Department has been asked to ascertain through the Spanish Embassy at Berlin, which has charge of American interests, whether similar courtesy is shown American inventors in Germany.

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American Products for Americans

THE following article appeared in a morning paper on November first, and even though it occupied an inconspicuous place in the paper, does it not occupy a place of importance in the minds of those who would undermine America's trade independence?

> ### Release of German Goods
>
> WASHINGTON ANNOUNCES AGREEMENT REACHED WITH BRITAIN
>
> Washington, Nov. 1—Approximately $4,000,000 worth of German products piled up on the wharves at Rotterdam will be permitted to move to America. The State Department has secured from the British Foreign Office permission to ship merchandise consigned to American importers and paid for prior to the entrance of the United States into the war.
>
> The shipments that have been prevented from leaving Rotterdam by British Orders in Council include consignments to 128 American merchants. Since the embargo imposed by Great Britain on the movement of enemy goods, the stock of Made-in-Germany products in America has been reduced to a minimum.
>
> The lot now released is of miscellaneous character, embracing articles from fabrics to Christmas toys. A large part are articles merchants are anxious to get across in time for the holiday trade.

We do not intend to question the advisability of this procedure, but we do question the effect of an announcement of this nature upon the minds of the American people who have been educated month after month to believe that we are becoming more and more independent of foreign importation.

Certainly, the stock of made-in-Germany products has been reduced to a minimum and the opportunity thus presented, should be grasped and made-in-America articles placed before the consumer.

You as a user of American-made dyestuffs and chemicals are acquainted with conditions and actual accomplishments, but the purchaser of fabrics is not given this information.

He or she is educated by articles which appear in the press. Does a clipping of this nature tend to strengthen the opinion of the people regarding our commercial achievements?

Mention is made of fabrics and Christmas toys, but how do we know that this shipment does not include products that are of direct importance to the dyestuff industry?

Even though this is not the case, does not the mention of fabrics suggest possibilities that will be eagerly grasped by those who would hinder the progress of the industry. When these fabrics are placed on sale in the stores, what will be told the consumer if the question of color is brought up? Would this not be an ideal moment to poison the mind of the questioner against American-made dyes?

The underhand methods employed by Germany have surprised the world and how do we know that some German agent is not at work on this particular shipment?

Would it not be an ideal way for Germany to strike at the industry through the retailer of articles that are dyed with Made-in-America dyes and one in keeping with German methods? We believe that a number of people in this country are deliberately trying to discourage the consumer against purchasing articles colored with American-made dyes. We furthermore feel that the attitude of salesmen in certain department stores is not the result of lack of information on actual accomplishments, but the result of deliberate well-staged German propaganda.

What is the result if, when we enter a store to purchase Christmas toys we find staring us in the face a label stamped "Made in Germany?"

Questionable American Merchants!

This clipping speaks of the consignment as being of importance to 128 American merchants, but what is an American merchant? Is it truly American to acknowledge our dependency upon Germany? Does a truly American merchant stock his counters with products manufactured by a people who are even now circulating letters with which they hope to undermine our commercial influence?

Would you not rather purchase a toy marked "Made in America" than to have in your house a toy which is a complete acknowledgement of the superiority of German manufacturing genius? Can we protect our American manufacturers if we allow our desire for gain to overcome our desire to make America commercially independent? German influence is even now being directed to the dyestuff industry, and the result is being felt.

Germany will not meet us in the open in commercial competition, but will follow the tactics now employed in their military aspirations and "stab us in the back." These spies and enemy agents who are waging a commercial war against us should be sought out by the Government so that others may be deterred from serving the Kaiser in secret. We talk about the existence of German propaganda and yet do so little to eliminate it.

If we were to ask these same American merchants to help us in cleansing America from this source of Kaiserism, they would all signify a willingness to do their share and in the meantime receive shipments from Germany.

Let us play our hands about the table and unite in driving from our minds the thought that Germany is all powerful commercially and come to realize that America *can* and is now becoming more and more independent. Let us display American-made articles on the counters. Let us, who are truly American, recommend fabrics made in America and dyed with American-made dyes and thereby eliminate the possibility of this propaganda undermining the industry.

"Loyalty to American Dyes"

THE following article is written for the purpose of encouraging the manufacturers of American colors and dyestuffs into a movement to get together and boost their products to the consumers and even carry the message further, and educate the Public as to quality, fastness, strength, brilliancy and other properties of Domestic Aniline colors as to compare to the imported products.

This in part has been done at the Chemical Exhibition held at the Grand Central Palace this year. Nevertheless, we should go further and continue in these steps. It is generally known in the trade that lately any defects in dyeing have been laid to the cause that American dyes were used. This is a way of evading responsibility, but actual observations and investigations have proven that dyers have been compelled to use adulterated standard colors which were bought from irresponsible jobbers or brokers who adulterated imported types or made mixtures of dyes which did not harmonize or combine chemically, and labeled them as being manufactured in the United States.

Bad enough as this may seem—there is still another matter which requires more serious attention. Large Department stores, wholesalers, etc., are creating and spreading the story which I will here relate. The object of the story is not definitely known but certain conclusions can be drawn, which will require your consideration and deliberation.

> "A purchaser in a store inquired as to the quality, fastness, etc., of the material or apparel, which he or she is contemplating buying. The polite salesman says: "We guarantee the quality, but as to the dye, we won't commit ourselves, as it is not German Dye. You know American dyes are not as fast as the Foreign ones, and I do not believe the Americans will ever make any fast colors. With this erroneous information, the purchaser feels that for money value, she does not receive what she formerly did and purchases in a discontented way goods dyed with the "inferior" American dyes."

(*Continued on Page* 11)

Notes of the Trade

The Southern Chemical Co. has been incorporated in Tryon, N. C., with a capital of $25,000 to manufacture sizing materials, dyes, etc.

The Acme Sales Corporation has been established at 189 North Clark St., Chicago, to deal in oils, chemicals, dyestuffs, etc. The company is composed of former members of the Marden Orth & Hastings Co., of New York City.

A meeting of the V. S. Finishing Co. was held last week when it was announced that the company had liquidated its floating note and debenture indebtedness. They report that American manufacturers are doing more and more to make domestic colors available.

The F. W. C. Co. has been incorporated in Brooklyn, N. Y., with a capital of $200,000. The incorporators are O. B. Reicheldt, M. W. Weinberg and W. Scholz of Newark.

The Penn Chemical Co. of Philadelphia, Pa., has awarded a contract for the construction of a new chemical plant which will cost something over $50,000.

The Lye & Chemical Co. has applied for a charter in Philadelphia, Pa., for the manufacture and sale of lye caustic soda, caustic potash, and other chemical products.

There has been practically no change in natural dyestuffs during the week. Former prices have existed in Gambier but stocks are small and deliveries will necessarily be limited.

The demand for Fustic has been active while just the opposite condition exists in regard to logwood.

Kutroff, Pickhardt & Co., Inc., has purchased from the Badische Co., of New York, its stock of dyestuffs, etc., and has taken over its staff and laboratories. The main office of the new corporation is at No. 128 Duane Street, New York, with branches at Boston, Providence, Philadelphia and Chicago.

Cost of Dyestuff Production

When anybody wants to criticise the American dyestuff industry they chose two methods, namely, that the quality of the dyestuff is not as good as was imported from Germany; and the other, that the prices are so high that the domestic manufacturer is making a profit beyond all reason.

The critics evidently have in mind that the manufacturer of today is making a profit between what colors sold for prior to the war and what they are selling for today, not taking into consideration the enormous cost of erecting plants, installing machinery, which today is at almost a prohibitive figure. If a person outside of the dyestuff business wants to find this out, let him get from an architect an estimate for putting up a house and he will find out in a practical way the increased cost of building.

If one were to take the trouble to find out the small amount of dyestuff produced in America prior to the war and the enormous amount produced today, his wonder would be that it were possible for American ingenuity to accomplish this, taking into consideration at the same time that the manufacturer was not easily able to find sufficient skilled or unskilled labor for the manufacture of his product.

As regards quality, the American manufacturer can point with pride to any number of mills who have produced a satisfactory quality of dyed fabrics with American dyestuffs; and bear in mind that at a time when the American textile manufacturer had an opportunity to greatly increase his production owing to the lack of imported textiles, it was the American dyestuff manufacturer who made this possible.

That the quality was not always what it should be was only a natural sequence as the manufacturer had to frequently work under a great many disadvantages owing not only to his inability to get raw material but also to his inability to obtain proper machinery.

As regards the cost of dyestuff today, the public must bear in mind that a dyestuff like Benzo Purpurine which sold prior to the war at less than 20 cents per pound was put on the American market when first produced at $4.00 per pound and the American consumer, as well as the foreign consumer, paid for the erection of the German plants and paid the Germans a good profit.

On the other hand, the Germans controlled the dyestuff industry to such an extent that they could easily dispose of all of their by-products as well as making pharmaceutical products and this was another handicap the American manufacturer experienced when he first started producing dyestuffs; for, as this was an infant industry, the disposition of the by-products was a difficult matter and in some cases impossible and this further added to the cost of the dyestuff.

The mills were in such dire need of dyestuff that they were willing to accept the color a little off-shade rather than wait for same to be standardized, for if the American manufacturer had waited in all cases to produce a perfect standard the production would have been cut down to the extent that a great many mills would have suffered and it simply resolved itself into a question of the greatest good for the greatest number.

The above will give just a superficial reason as regards the high cost of colors today.

If the consumer would only stop to think that two and a half years ago there was hardly suitable equipment in this country for the manufacture of dyestuffs, and the great number of products available today can only demonstrate the efforts and progressiveness of the true American, and if the consumer will only consider how the American dyestuff manufacturer came to his rescue and produced colors which enabled him to turn his goods out and make money on them, he should be proud to O. K. his dyestuff bills, and gladly support, instead of criticize, the American industry.

Loyalty to American Dyes

(*Continued from Page* 9)

Some of this work is done by pro-German element with no other cause than to belittle the American Dye Industry, and to poison the mind of the buying public so that after the war people will buy goods advertised as follows:

> "We guarantee that these goods have been dyed with Foreign dyestuffs and are fast."

We can also relate another instance of a Mill owner (now pro-German). He was of the opinion that he got "imported aniline color" previous to the war from a certain Dyestuff concern. When the European War broke out, he hurriedly bought what he could get fearing a shortage. After a while, he was compelled to purchase more of this color. and as all importation of dyes was shut off from Germany, he had to resort to an American color. The *identical domestic* color was furnished as heretofore, but his tests showed it was not as good; did not have the fastness or other good qualities as former color had—hence, you can see what we American dye manufacturers are up against and will have to contend with. So in conclusion, would like to say that we ought to illustrate, demonstrate and educate the people as to what American Dyes can do, and adopt the slogan as follows:

FOREVER AND EVER "AMERICAN DYES."

American Made Dyes Equal Now To Any

REMARKABLE PROGRESS MADE BUT WE STILL LACK IMPORTANT COLORS

(*This Article is Reproduced with the Full Permission of the Writer, Edward M. Keator, Factory Manager of Dunlap & Company, Brooklyn, N. Y.*)

Silk manufacturers are satisfied since the chemical show, at which about 300 colors and shades were shown by American dye manufacturers, that American made dyes will stand comparison with the dyes used anywhere.

One manufacturer said he saw no difference in the working of the new dyes from the old and that all tests made had proved American colors now are as fast as any.

While the American dyestuff manufacturer has made remarkable strides in three years, he has not produced such a variety of colors as the Germans.

For instance, there are a multitude of shades in which blue is a necessary ingredient. No dyestuff manufacturer has produced a satisfactory blue as yet, not even the National Aniline and the Du Pont, each of whom have the necessary chemical staffs and manufacturing organizations ultimately to produce it. What is the outcome?

The dyer must rely on indigotine to produce his shading. This is one of the most fugitive of dyestuffs in light. Hence the invariable result is that the indigotine fades out and leaves the faster color with which it is employed standing alone; and the wearer of the material, be it a suit of clothes or a hat, runs as fast as he can to the retailer with his complaint. The retailer in turn comes back to the manufacturer with a demand for credit, as he has been compelled to make good to his customer.

It is news items such as the attached which make the public so unreasonable. The other side of the story should be told with as much prominence.

All of us who use dyestuffs have marvelled at the progress the American manufacturer has made, but let us not be so self-assured as to make ourselves believe that we can accomplish in three years what the Germans have taken forty years to do.

Many dyes are still protected by German patents, and while we undoubtedly could produce very good substitutes, we cannot even do this if our Government still allows our patents to protect those alien enemies.

I quote below an article on the present dyestuff situation from the *Little Journal* of Boston:

"Before the war there were five concerns making synthetic dyestuffs in the United States. Now, aside from twenty-three concerns producing crudes, or the first fruits of coal tar as we might call them (and these do not include the retort coke oven plants or phenol makers), and sixty-eight makers of the intermediate materials, there are ninety-eight concerns making finished dyes. They are not wholly devoted to making these products; some began to make certain specialties otherwise unobtainable for their own use, and now they produce for the market, others confine themselves to one or two colors, and still others are only starting up. On the other hand, some are vast concerns, working intensely with rare talent and skill and rapidly enlarging their capacity and variety of product.

"Roughly speaking, 75 per cent. of the dyestuffs needed are made in this country, and of this three-quarters some are made in such excess that a considerable export trade is carried on to friendly countries, especially to England. Of others there is a shortage, and this is serious in such basic colors as magenta, methylene blue, auramine, methyl violet and a few more. The prices of many of them are way up in the air, which has lured into the business a number of minor concerns in which the art is lacking to secure adequate yields. Some also are under incomplete chemical control and they fail to purify their materials properly. This is incidental to pressing need and hasty establishment which the whip of time will correct. On the other hand the very highest praise should be awarded to the conscientious manufacturers who have strained every nerve to meet the country's needs, often at the expense of profit.

We have, then, three-quarters of the dyestuffs needed, some a plenty and others scarce. In regard to quality, American made dyes are the same as German dyes, only there are not so many of them. If some small makers are still short in their yields, the loss is theirs. If they do not purify their materials enough the defect is more likely to be in shade than in fastness. This is a complete catalogue of the defects of American made dyes, and it does not apply to the products of the important makers. Nevertheless, dyers have been sorely put to it. They have had to use one material when they wanted another, and the substitutes have often been unhappy. They have also been compelled to relearn the art of using dyewoods for many purposes which are new to the present generation, and this is not to be learned in a day. The trouble, however, has principally come from the makeshift substitution of wrong materials for the right ones, because the right ones are lacking. The colors themselves are the standard articles whether made in Germany, France, Switzerland, England or here. And missing and scarce products are coming upon the market as agreeable surprises at short intervals.

"In regard to the missing quarter, Congress cut off from the tariff bill the ad valorem duty on indigo and alizarine products, which discouraged manufacturers at the start. Nevertheless, indigo, of which many thousands of tons are required annually in this country, is now being made by the Dow Chemical Company at Midland, Mich., although at present there is not enough made and natural indigo imported to meet even the needs of the United States Navy. But the National Aniline and Chemical Company, Inc., is building a great indigo plant, and it is generally understood that the Du Pont Chemical Company is about to begin, so that with these great concerns engaged in it the production of all the indigo we need is only a question of time. In chemical research they are the peers of the German establishments.

J. Rufus Wallingford in the Dyestuff Arena

(*This article is reproduced from a reprint of an advertisement which appeared in a recent issue of "Textile World Journal." We withold the writers name, with his full permission.*)

THE Dyestuff Arena presents a splendid field for the get-rich-quick efforts of J. Rufus Wallingford. For certain purposes, these efforts may be classified as follows:

1. That which partakes of the nature of grand larceny and is clearly criminal.
2. That which is business trickery of a character which makes business impracticable.
3. That which is legitimate business strategy.

THE CRIMINAL

The principle crimes may be called the *Teaser Game,* the *Sliding Scale Game,* the *Gold Brick Game,* and the *Confidence Game.*

The Teaser Game: In its most highly developed form, this is a criminal violation of the Federal Laws. It consists in offering a scarce color like Indanthrene Golden Orange RRT, getting an acceptance of the offering, falsely representing that the offering has been sold, passing the offering along to another party in the game, having this party repeat the same performance, and so on until the price has been doubled or trebled. With the aid of the Attorney General of the United States, this corporation has done considerable to stop this game.

The Sliding Scale Game: This consists in offering for sale a sample of a certain strength, getting the sample exhausted if possible, offering a second sample 5% to 15% weaker, and then making a delivery of 5% to 15% weaker than the second sample. This game is played most boldly with Rhodamine. By reason of its fluorescence, this color is very deceptive with respect to its tinctorial power. When money is obtained before acceptance of delivery, this game amounts to the crime of obtaining money under false pretenses. It was played very openly during the summer of 1917.

The Gold Brick Game: A good example of this is the case of some Acid Violet Powder turned into 20% Paste and sold as Algol Violet R. Fraud of this kind, which is deliberate on its face, is of the same character as the sale of Gold Bricks made of brass and demands the same punishment.

The Confidence Game: This consists in doing business in a straightforward manner several times and then suddenly effecting a theft. During the summer of 1917, a certain dealer sold 65 pounds of Chrysophenine per sample, delivered 30 pounds of Chrysophenine and 35 pounds of salt, handled the delivery so that there was no chance for a test, guaranteed delivery like sample, and got a check for the full amount. This is the baldest kind of theft.

DESTRUCTIVE BUSINESS TRICKERY

Human nature being as it is, business is not conducted successfully or effectively after the fashion of Pink Teas. A certain amount of finesse or strategy is expected in business to make it human. But that strategy or finesse or trickery which tends to make business impossible by breaking down the organization whereby it is conducted is instantly condemned by all sane and responsible business men. One of the principal purposes of stock exchanges, cotton exchanges, wheat exchanges, and the like, is to provide and enforce rules tending to do away with such strategy or trickery as tends to make business impossible.

In the Dyestuff Arena, the principal forms of destructive business trickery are as follows:

Fake Offerings: These are offerings which do not exist. Those who deliberately make fake offerings either seek publicity and business standing by false pretenses as to business assets, or represent interests desiring to break down legitimate trading.

Deceptive Offerings: Offerings which specify the strength of a color where such specification is substantially false tend to break down business by wasting valuable time. Likewise offerings which suggest uses to which the color is not suited at all, are so deceptive as to tend to break down business.

Fake Withdrawals: With the universal necessity of testing samples, it is difficult enough to do business when offerings are subject only to actual bona fide independent prior sales to others. Such prior sales are aggravating enough and wasteful enough. But when to this waste is added the aggravation and waste of sudden withdrawals on any convenient protext, the practice becomes so intolerable as to deprive the fakirs of any business standing whatever.

General Faking: Acceptance of orders followed by a breach to obtain better terms elsewhere, deliberately making delivery below sample to avoid performance, and the like, are other instances of faking of the kind that tends to make business thoroughly impracticable.

Legitimate Business Strategy

The first great test of legitimate business strategy is that delivery shall conform to sample. The second is that the offering shall contain no specific false representation or substantially false suggestion. To send a 2% dyeing marked 1% dyeing is a specific false representation. To offer Acid Violet as Algol Violet is a substantially false suggestion.

An example of legitimate business strategy may be instructive. If Dr. Robinskli should distil from violet an essence which, by the addition of *One-Tenth* per centum to ordinary Direct Violet brilliant in shade, fast to acid, and fast to light, he would certainly be justified in adding such distillate in such proportion to any Direct Violet and in offering the resulting mixture as Robinski Direct Fast Brilliant Violet B.

Dye Strength in England

In a dyestuff case at the recent Assizes, counsel made great display with the phrase which has attained a significant currency in the trade—the "pre-war standard;" but the legal mind does not succeed as a rule, in throwing much light on subjects of this kind.

It appears that our German enemies had exported their dyestuffs to use in such a state of purity and uniformity that the standard cannot now be reached in spite of all our endeavors, and that no sample of dye that was not sanctified by the words "guaranteed pre-war standard" could be expected to be of first-rate quality. If that be so, it is not a very proud position to assume for a trade which has received national benediction and support, and which might almost be called now the spoiled child of British industry. Is it the fact that our manufacturers of dyes, handicapped as we know they are in some directions by lack of raw material, are deliberately adopting for such dyes as they can make a lower standard than that set up in pre-war times?

In the first place, it is a little amusing to those who knew something of the inner workings of the German firms, and who would not have been surprised in those days to have been comparing half a dozen different standards of the same thing or as many complaints of variations from standard, to find that "pre-war standard" is a name to conjure with. It is true that in such stock colors as direct cotton blacks and blues, benzo-purpurine, sulfur blacks and alizarin, in which price conventions had been established, there was a fairly exact standardization. But in other quite common colors, such as wool scarlets and direct cotton pinks, there were variations of as much as 20 per cent between the regular standards of first-rate firms. Further, even in such a stock color as direct cotton black, one maker would offer one shade in two or even three different standard strengths, varying at least 50 per cent. Which of these standards now represents German orthodoxy?

It must be borne in mind, of course, that, for practical reasons and with one or two exceptions, dyestuffs are never marketed in the chemically pure state, but are "reduced" with various colorless diluents, which do not affect the coloring principle in any way. In other words, they are "standardized," and each maker adopts his own standard of strength, which, under pressure of competition, tends to approximate in relative price to the standards of other firms. Unfortunately for the dyer, a difference of a halfpenny per pound is much more obvious to him than a corresponding difference of 10 per cent in the strength, and, therefore, it not infrequently happens, and it has become a more common practice during the dyestuff famine, that a quantity of dye will be passed from hand to hand and further diluted in the process, or an odd parcel will be made up to a full hundredweight. The dealers have increased in number, while our sources of supply have decreased. This process of dilution is not in any way detrimental to the dye; it remains the same dye, and may rightly carry the same name, but it is not "pre-war standard." Where a mixing of dyes is in question, the matter is not quite so simple; instead of a comparatively innocent dilution, the dyer may receive an article which would be more correctly described as adulterated if the fastness and chemical properties, or even the shade of the dyeing, should be deteriorated by the admixture. Such an adulteration is much less easy to compute or even detect than a mere dilution, and in some cases the impurity may be present as a by-product of the manufacture, which, with more experience, the manufacturer may be trusted to eliminate. But in every event it is highly desirable that the dyer should make preliminary tests of every parcel of dye he proposes to buy, both to ascertain its coloring value and also that it will have the properties of fastness which he associates with the name under which it is sold. A dyestuff might be of full strength, and yet very far from "pre-war standard."

It is clear from these considerations that the phrase is only a very rough indication of the strength of the dyestuff, and indeed it is to be feared that it is very loosely used at times, and that under the abnormal price conditions ruling little consideration can have been paid to standards of any kind. Standards have no value apart from price, and standardization will only become of increasing importance again under the pressure of competition. In the meantime, the British manufacturer of dyes sets up his own standard of strength to work to. It may be comforting to the dyer to know that that British standard is well above the market standard of strength-value and is comparable to a normal German standard, but more comforting still is the knowledge that the price is well below that of the open market—*The Manchester Guardian.*

AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

Circulating Wherever Dyestuffs are Used

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Vat Dyes to Be Made in U. S.

CLASS OF COAL-TAR COLORS THAT HAVE DEFIED AMERICAN EFFORT WILL BE AVAILABLE THROUGH LICENSING OF MANUFACTURERS TO OPERATE UNDER GERMAN PATENTS — WILL ROUND OUR AMERICAN DYE INDUSTRY— INDIGO WILL BE MADE BY PROCESSES DEVELOPED HERE.

American-made vat dyes on the market within a few months is the prediction of the trade as a result of the enactment of the Trading With the Enemy Law, which makes available to manufacturers of the United States under license German dye and chemical patents estimated at above 3,000 in number.

For the better part of three years leading chemists of the nation have devoted their efforts to the establishment of a self-contained dye industry here. An adequate supply of capital and equipment has been at their disposal, but so far they have found it impossible to produce in the United States that class of colors known as vat dyes. These are stated by dye experts to be the fastest colors made and are employed very extensively in dyeing cotton goods of all kinds. Their fastness makes them particularly desirable for goods that are laundered frequently.

"The vat dyes are by all odds the most important covered by German patents in this country," said the vice-president of a well-known manufacturing plant. "There are comparatively few aniline dyes patented here which are not already made in American plants. American manufacturers have not been able to make any progress in turning out vat dyes, however, and the German patents which will shortly be available through the issuance of licenses will be of tremendous advantage in building up a well rounded out dye industry."

Licenses for Term of Patent

The National Aniline and Chemical Company was among the first to put in an application for the use of German patents, most of the licenses asked for concerning vat dyes.

"I understand that the Government's attitude toward the dye industry is very favorable," he continued, "and do not believe that any difficulty will be experienced in obtaining the licenses. I have no information as to the terms for which the licenses will be granted, but expect that they will be for the duration of the patent, the German owners to be compensated as the Government sees fit. To operate under the patents will require the expenditure of considerable capital and effort, and it would not pay American manufacturers to enter into the production of the articles patented merely temporarily. They must have some assurance of protection for the future."

It was explained that the basis of the vat dyes was a coal tar derivative that was in plentiful supply here, but that a new plant and equipment would be required for their manufacture. The construction of the plant would take some time so that vat dyes could hardly be placed on the market for several months. American producers have been hard pressed during recent months and were beginning to view the situation in this particular field with increasing pessi-

mism. But now with the patent rights available for use, and with capital at the disposal of concerns manufacturing dyes, they will be able to make great strides in production.

Market Value of American Product

"The entrance of the Du Pont Powder Company into the field to assist those other companies already established should mean much to the trade. With their resources and skilled chemists they should be able to do much for the cause. There is one point which I wish that you would stress in connection with the subject of dyes. The consumer who casually reads the newspapers may easily gain the impression that with increased production and increased facilities dyes can now be sold at lower figures.

"This idea is incorrect. I can see no falling off in the prices that will obtain in dyes for a considerable period. You see, the overhead charges which manufacturers have to face prohibit any such decrease in price. Take, for instance, the production of black. There are so many items which enter into the manufacture of this color that no one conversant with the condition of the industry can possibly hope for a reduction in prices. Many of the items which are used in the production of this color are also necessary to the production of powder and other explosives. You can go down the lists of items which enter into the production of both explosives and certain dyes and you will be able to check up many of these items on both lists.

"An item which must be figured in every branch of industry at the present time is the increased cost of labor. From a mere casual reference to be cited in raising the price of a commodity, it has come now to be a vital factor in the determination of the price of every commodity. Labor is high, and it is so because of the increased cost of living. In order to provide for efficient service on the part of the laborer, manufacturers must pay their employes wages which will enable them to maintain a livelihood.

"Much of the profit which has been realized by different concerns has been turned back for the purpose of enlarging the plant and providing for the increased business that the demands of the war have made upon every industry. These are some of the factors which manufacturers have been forced to consider since 1914. The announcement that we are going to be able to make use of the German patent rights at least for the duration of the war is naturally hailed by manufacturers as a prediction that there are better times ahead for the trade."

Market for Vat Dyes

Attention was directed to the fact that the law provided for the issuance of (1) exclusive licenses and (2) general licenses, i. e., licenses which would not prevent the granting of licenses to other manufacturers to operate under the same patent.

"I do not think that the Government will discriminate in favor of any particular interests in the case of the dyestuffs industry and I doubt that the granting of exclusive licenses would be desirable. There is a broad enough field for all competitors. Particularly is this true of the vat dyes, for which there will unquestionably be a wide market. The number of applications to operate under these patents will be limited, principally because the development of the processes will involve a comparatively large investment."

Synthetic indigo, which is generally classed with the vat dyes and, before the war, was manufactured exclusively in Germany, is already being produced here in commercial quantities, although not in amounts nearly sufficient to meet the demand. It is announced that The National Aniline and Chemical Company will place synthetic indigo on the market next year, manufactured by an American process, and that the Du Pont interests have also developed a process independent of the German patent which will be employed to put American indigo on the market. The Dow Chemical Company already is manufacturing synthetic indigo here.

Indigo Made Here

"Our costs figure out approximately the same as the German costs. The final test will, of course, come only when we are turning out indigo on a commercial scale. But the indigo situation appears already to be fairly well in hand, and it is unlikely that the German patent will be employed as extensively as those on the general list of vat dyes.

"The addition of vat dyes to the line of colors made in America will insure a complete dye industry here. Aniline colors are now manufactured in the United States as good, if not better, in quality as those imported from Germany before the war, and the range of colors and shades is generally regarded as satisfactory. Production has reached a point where American requirements can be handled without much difficulty, and in certain lines a state of overproduction exists."

Through the use of German patents Great Britain has established since 1914 a successful vat dye industry, producing colors that fully come up to standard. Recent reports show that it will be a matter of only a short time before British manufacturers will be able to produce vat dyes in sufficient amount to meet all the requirements of their market.—*The Journal of Commerce, November* 9.

Dyestuffs Absorb Moisture

American manufacturers of dyestuffs should remember that when a freshly made dye is packed immediately after drying, it has the capacity for absorbing upwards of ten per cent of moisture from the air. Samples put into glass stoppered bottles may remain quite dry and the shipment later may have a chance to recover its moisture. This has the same result as reducing with salt and a test will show it weaker than the carefully preserved sample. This may explain some incidents that once were hard to understand.

Navy Test for Blue Cloth

The U. S. Navy requires that blue cloth stand a test of one hour at 180° F. with a 1% solution of Navy salt water soap without bleeding into white union goods. This is a very severe requirement but one American product, a blue on a chrome mordant, is standing nearly as well as Indigo dyed in the vat.

Notes of the Trade

The Bayre Company, Incorporated, of Rensselaer, N. Y., is to erect several coal pockets on its land along the Hudson River. This is made necessary by difficulties they have experienced in securing coal by rail. This contract has already been awarded and when the buildings are completed, the company will be able to secure its coal supply by water. We are informed that the company contemplates the addition of new buildings in the Spring.

In the Kansas University of Kansas City, experiments are in progress on coal tar from coal that is mined in that vicinity. If the experiments prove successful, it may mean that a local industry may be established in that locality.

The Commonwealth Chemical Corporation, 1500 Garden Street, Hoboken, N. J., manufacturers of chemicals and kindred products, is planning for the construction of a new one-story reinforced-concrete laboratory building at its plant.

The Farben-Fabriken of Elberfeld Co., dyes and pharmaceuticals, has been incorporated under New York State Laws, with an active capital of $100,000. The incorporaters are: G. A. Reiss, W. F. McDermott and T. M. McDermott.

Charter has been granted to the Niasco Chemical Co., Trenton, N. J., with a capital of $250,000 to manufacture chemicals. The incorporaters are: Henry J. Camby, R. E. Hetel, F. Frankenhoff, Hoboken, N. J.

It is reported in the market that good sized quantities of domestic chemicals and dyestuffs have been purchased during the last few months of French and Italian account, to be shipped after the war.

Inquiry Department

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Question—What class of dyes are used for dyeing embroidery silk so it will be fast to washing?

Answer—If fastness to washing is the only requisite, many dyers use simply direct cotton colors dyed with a little Acetic Acid. Under these conditions, the shades are both brighter and faster than the same dye on cotton. Then the second class of colors are the developing dyes—Primuline, Diago Blues and Scarlets, also Browns and Blacks. For the very best work, the Vat dyes may be used but the expense of dyeing is the main factor to be considered. It is not practical to use Alizarine or After-Chrome dyes on silk on account of the destructive action of the chrome on the fibre.

Question—When Direct Black in a standing kettle for cotton dyeing has become reddish and will not give a good shade even when sal-soda is added, what can be done to correct the bath?

Answer—The best remedy is to pull the plug and let it run into the sewer. Some Direct Black contains a reddish by-product which does not dye as rapidly as the true color and this is likely to accumulate in the standing kettle. Ordinary Direct Black turns reddish on account of acidity and can be restored by the addition of soda, but the reddish by-product is unaffected and in time accumulates to such an extent that the cotton retains it and the shade of the dyeing is spoiled. The value of the color in the bath is less than that of the cotton, so it is better to start a fresh bath whenever this condition becomes troublesome.

Question—How can Sulphur Acid Blues and Sulphocyanine be dyed evenly on wool?

Answer—By using very little Acetic Acid and Glauber Salt and raising the temperature slowly, but if this cannot be controlled easily, it is best to use Acetate of Ammonia only with the dye. The heating of the bath slowly liberates the acid and the dye is fixed slowly and consequently evenly. Dyes of this class are the most troublesome to dye evenly, but their great strength and good fastness have made them popular.

Question—What is the proper manner to dye basic dyes on cotton yarn; should they be done cold or is a hot bath desirable? Also why do many not penetrate the yarn?

Answer—The dyeing of basic colors on cotton depends very much on the skill and judgment of the dyer as well as on the quality of the dye. The more careful dyers first stir the dye with cold water and a little Acetic Acid and then add boiling water. In case there are any insoluble particles after a reasonable amount of stirring the solution should be run through a cheesecloth strainer. The yarn has previously been prepared with Tannic Acid (about 5% for medium shades) and fixed with Tartar Emetic in slight excess then thoroughly washed. The dyeing may be started about 140° F. In this case of Amamine, it must never exceed this temperature. In all cases the addition of 5% of Alum will promote even dyeing on account of its slight acidity. If the dyeing is conducted at not over 170° the shade will be fuller, but if raised to a boil, the penetration will be better, the bath will be more exhausted and there will be less tendency to rub. Dyeing which penetrates poorly and rub badly generally have too much tannin mordant for the amount of dye and conversely if they have too little mordant will not exhaust the bath.

Question—What dyestuffs are suitable for coloring cold water paints made from white mineral substances and casein such as are used for wall coverings?

Answer—So far no dyestuffs have been found available for this purpose for two reasons. In order to render the casein soluble, the materials always contain strong alkalies which act destructively on most coloring matters and secondly because none of the dyes which would be cheap enough to be used for this work are fast enough to light. A dye well combined with a mordant or a textile fibre may possess a good fastness to light, but when used in a free condition loses much of its fastness. This is true in all cases where dyes are used as stains and no way has ever been found to overcome the difficulty. In such cases, manufacturers have been forced to use mineral colors or chemical precipitates such as are used for paints and even in pre-war-times nothing in the line of artificial dyestuffs could compete for cheapness and durability.

(*Continued on page* 9)

England Claims Expansion of Her Dye Industry

Many New Plants Being Constructed According to a Recent Report of the Board of Directors of British Dyes, Ltd.

"The production of dyes continues to be limited by the shortage of certain materials, but notwithstanding this the supply throughout the year has been increased, and the variety of dyes extended. An extensive plant for the production of Azo colors has been completed, and is now in operation. The range of direct cotton colors has been supplemented by the inclusion of a yellow, violet and green. The supply of wool colors of this type has been enlarged. The production of methylene blue has been largely increased, and the output of mordant colors of the type of khaki yellow, green and brown is now sufficient to meet the demands made upon the company for dyestuffs used in the manufacture of the varied clothing equipment of our own and allied troops. Among the vat dyes of the indanthrene type a blue and yellow are being produced. It is hoped shortly to extend the range of these colors.

A New Color Now Being Produced Which Is Similar To Alizarine Blue

"The company has produced a color similar to the alizarine blue dyestuff for wool of exceptional fastness to the action of light. The requirements of the Government for dyes for a variety of military purposes have been fully met, and this demand has to some extent necessarily interfered with the regularity of supplies to the trade. Important installations for the manufacture of intermediate products, including paranitraniline and betanaphthol have been completed. Plants for the manufacture of other products are being proceeded with as rapidly as possible, and as these come into operation they will provide materials from which the variety as well as the quantity of colors manufactured can be augmented.

"In addition to the plant referred to the following important work, as well as much minor work, has been carried out: (1) The construction of the works railway and its branches has been well advanced toward completion. (2) A number of large new sheds for the manufacture of intermediate products and colors have been completed. (3) The electrical installation has been completed and both the old and the new works are now entirely operated by the companys' own plant. (4) A power gas plant has been completed and is in operation. (5) A water service reservoir, with a capacity of 2,000,000 gallons, has been constructed. (6) A pipe system for the distribution of gas, steam and compressed air throughout the works is approaching completion.

"The work of the Research Department has received a great deal of attention during the year and increased facilities for laboratory and experimental work have been provided. As soon as arrangements can be made for the supply of labor and materials, the construction of the main Research Laboratory at Huddersfield will be commenced, the plans having already been prepared. In the mean time research work on behalf of the company is being carried on at the Universities of Oxford, Leeds and Liverpool.

Co-operation of Dye Manufacturing Plants

"The question of co-operation among dye manufacturers has been engaging the attention of the Board of Trade throughout the year, but they have not yet taken any definite steps in this direction. The directors have throughout maintained the attitude that they will welcome any tangible proposals for co-operation with other manufacturers, provided that the interests of the textile and other industries dependent on the supply of dyes are safeguarded and that the co-operation can be carried into effect in a manner consistent with the object for which the company was established.

"The directors would again emphasize the fact that before dye-making can be established as a national industry in this country it is necessary to erect plants to manufacture intermediate products, and the provision of plant for this purpose has largely devolved on the company. While a great deal has been accomplished, with limited means and under difficult conditions, in producing dyes to satisfy immediate needs and in laying the foundations of the industry, it should be clearly recognized that not much more than a beginning has been effected up to the present, and great efforts have yet to be made. The supply of materials, plant, labor, qualified chemists, and of capital must be very largely increased.

"The need for the employment of greatly increased capital is emphasized by the fact that the recently published accounts of five of the German dye manufacturing firms show assets which amount in aggregate to upward of £35,000,000 sterling, including cash resources of approximately £10,000,000 sterling.

"The issued share and loan capital of the company as of April 30, 1917, consisted of: Share capital subscribed (942,069 shares of £1 each, 15s per share called up), £942,069; loan from Government, £1,142,069, making a total of £2,084,138.

"The directors report that they feel justified in recommending the payment of a dividend at the rate of 6 per cent per annum, which is the maximum amount allowed."

AMERICAN DYESTUFF REPORTER
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DEXTER W. HEWITT, President
A. P. HOWES, Vice President
ELISHA HEWITT, Secretary and Treasurer

MYRON DREW REESER, Managing Editor

Our Policy

We wish to have it understood that the AMERICAN DYESTUFF REPORTER is not a house organ for any particular company or companies and that it is maintained solely for the purpose of reporting conditions in the Dyestuff & Chemical Industry.

If there is any reference to any particular company or member of any company in our articles, this reference is given only to show that the article is authentic and is not done for the purpose of advertising.

We hope to do our share to help this industry in reaching a state of permanency.

We do not discourage dealing with reliable selling agents, but we do take the stand against those who are not reliable, for in this way only can we make the REPORTER of value to you as a consumer. We have been criticised for this stand and expect to be criticised more in the future, but we have the satisfaction of knowing that this expression of disapproval does not come from reliable companies.

We are told that the trade knows conditions and that we are making a mistake in thus digressing from the conventional. Do you as a consumer feel that we should change our policy?

When we established the REPORTER we set for ourselves the following rules of conduct:

1. To print only information which is in every respect reliable.

2. To avoid misrepresentation and exaggeration in every form.

3. To avoid recommending or endorsing in our editorial columns the goods of any particular manufacturer.

4. To avoid advertising individuals or firms under the guise of special articles.

5. To expose and combat all questionable practices in the trade and those who practice them.

6. To accept advertising only from actual manufacturers of known reliability or from dealers whose financial resources and business records guarantee satisfactory performance of contracts made.

7. To furnish consumers with authentic reports of the latest developments in the field of dyestuffs, colors and allied chemicals.

8. To assist consumers to the extent of our ability in securing reliable and unbiased information upon any questions in regard to which they may consult us.

We believe that careful adherence to these precepts will gain for the AMERICAN DYESTUFF REPORTER the confidence and trust of the trade at large. We know that only if it enjoys such confidence can it hope to be helpful to the industry or profitable to its publishers.

We have issued six numbers of the REPORTER and now we want an expression from our readers regarding our efforts to make good this policy.

We have the co-operation of the reliable manufacturer and with your expression as a guide to policy we can and hope to make the AMERICAN DYESTUFF REPORTER a weekly publication that is not just another magazine in the field, but a publication of real benefit to the manufacturer, consumer and the industry.

Release of Vat Dye Patents Is Welcomed by Finishing Houses

Cotton men yesterday expressed unqualified enthusiasm concerning the prospect of obtaining German patent rights for the manufacture of vat dyes. The supply of German dyes which was in this country at the outbreak of the war has been carefully and judiciously used, it was said, and the announcement of permission to use the patent rights on these products was welcomed the more eagerly in view of the fact that the available supply has been almost exhausted. The recent ruling by the authorities at Washington has caused manufacturers of cotton cloth to view the coming year with confidence. In commenting upon the outlook in this particular branch of industry an official of an important finishing concern said yesterday to a member of the *Journal of Commerce:*

"We are about at the end of our resourcefulness in the matter of vat dyes. We bought up all the available supply that we were able to locate as soon as war was declared in 1914. Of course, everyone realized that there would be no further supply since Germany had withdrawn from the worlds commerce, and there was a rush to secure the largest possible amount of the dyes. No one could foresee just how long the war would last, but the consensus of opinion pointed to a much shorter period than actual facts have shown.

"During the three years since the outbreak of the war, American ingenuity has been sorely taxed in the matter of making up the deficit created by Germany's withdrawal. It has been only within recent months that the situation has improved. New money has been invested in various new concerns, and houses that have been running for a considerable length of time have been aided by new capital. The result has been a gradual and steady improvement in the situation as a whole.

"Vat dyes have not as yet been produced in this country. The recent decision by the Government will pave the way for the building up of this new industry. There is an abundance of capital, and with this new field of possibilities open to us we can proceed to manufacture these dyes. The situation will be relieved gradually. The making of vat dyes is an involved process. It requires an abundance of both time and skill. This kind of dye is used exclusively in goods where the color must be proof against frequent wash and intense light.

"Cotton goods colors are only fast when they have been put through the vat dyeing process. This dye is used for shirtings and wash goods. Needless to say, the war has brought about an increasing demand for this product. This is due to the inability of manufacturers and finishers to import it from Germany.

Inquiry Department

(*Continued from page* 6)

Question—I bought a dye advertised and labelled "Fast Yellow," but find that it is not fast in any way. Would this be considered a fraud or is the name not to be regarded as a guarantee of quality?

Answer—If you have access to any foreign sample cards, you will find on all of them under the dyeing formulæ and specifications the words "oline garantie"—"without guarantee." No dyes were ever sold as guaranteed to even produce the shades their names indicated, much less to have any particular fastness. The names of dyestuffs are less descriptive of of the character of the goods than any names used in trade. As each new color was discovered, it had given to it by various manufacturers a number of names among which the adjectives "New," "Fast," "Solide," "Echt" and others of like character were used lavishly. Later developments have made the names simply ridiculous, but they still remain, and consumers have long since realized that the true estimate of any dye lies not in its name but in its actual qualities. We doubt whether, in the view of the established customs of the business, you could prove a case against a dealer who had used a name that was misleading when you had a full opportunity of ascertaining beforehand whether the goods were desirable.

A Recent Patent Which Makes It Possible to Obtain Brown Shades With Aniline

A new process, lately patented, is said to enable one to obtain a series of brown shades, based on the discovery that by oxidizing salts of aniline, or its homologues, in which there is an aromatic hydroxy body containing no nitro, nitroso or animo group, such as phenol, a general reaction takes place by which brownish shades are formed. The process is explained by means of the following two examples:

(1) Impregnate the fabric with a hot solution of a mixture of a 10 per cent solution of aniline salt, and a 10 per cent solution of phenol. Develop by an acidulated bichrome bath in the usual manner for aniline salts without the phenolic body, using sufficient proportions to obtain the desired result. A typical bath would contain 22 lbs. hydrochloric acid of 32 deg. Tw., 14 lbs. bichromate of soda and 200 gallons water.

(2) A textile fabric mordanted in the above bath is boiled in a mixture of, say 10 lbs. aniline salt and a similar amount of resorcinol dissolved in 200 gallons water. The temperature is gradually raised and the liquid boiled for half an hour, until the shade is developed.

Spring Textile Exhibition

Will Include All Classes Of Machinery and Fabrics

The 1918 spring exhibition, to be held at the Grand Central Palace, in New York City, under the auspices of the Textile Exhibitors' Association, bids fair to exceed the sanguine expectations of the management. The Merchants' Association of New York is co-operating in the formation of a representative co-operating committee which shall select suitable headquarters for the visitors from foreign countries, who are expected to attend in large numbers, as it will give them an opportunity of finding under one roof a representative display of American textile machinery from all the different branches of the industry.

Foreign Trade Inquiry

An agency is desired by a firm in Brazil for the sale of industrial chemicals, caustic soda, soda ash, acetic acid suitable for the textile and soap industries, and all kinds of dyes suitable for cotton textile industry. All business is desired on a commission basis. Cash will be paid. Shipments are preferred through some reputable export house which understands documentation for Brazil. Correspondence may be in English.

Particulars can be had from the Reporter.

Dyestuffs are now tested for fastness to light not by being hung on the roof for several days, but by being exposed to Ultra Violet rays for an equal number of hours. The U. S. Government recognizes the test as a fair substitute and a great saver of time.

Dyestuffs and Chemicals That Are Actually Obtainable

We suggest to our readers that they carefully preserve these lists, as in their complete form they will give a full and accurate record of the sources of supply of all dyestuffs and chemicals manufactured or handled by reputable American companies.

Owing to the number of companies who are now concentrating on Khaki, this list will include only the colors that are being manufactured at this time.

The following is taken from the first four issues of the American Dyestuff Reporter and shows in full the colors listed in each weekly issue.

We have been criticised and congratulated upon this policy and in view of the fact that the majority are in favor of its continuance, you will see each week a list of colors made by, or sold by, manufacturers who are handling the best products obtainable.

We will be glad to list any manufacturers or selling agents who are known to be reliable.

Any enormous listings can be corrected only with your assistance and we ask you to co-operate with us accordingly.

NATIONAL ANILINE & CHEMICAL COMPANY, INC.

244 Madison Ave., New York

Aniline Colors

Direct colors: for cotton, union goods, etc.:

Erie Black Gxoo
Niagara Blue 2B
Niagara Dark Blue 3R
Niagara Blue DB
Ammaco Direct Blue 3B
Erie Brown C
Erie Brown GR
Direct Brown T
Erie Green WT
Ammaco Direct Green WB
Erie Green MT
Erie Orange
Benzo Purpurine 4B W
Congo Red 4B
Niagara Garnet R
Ammaco Primuline WB
Niagara Violet BW
Niagara Fast Yellow F
Niagara Yellow KM
Ammaco Chloramine Yellow WB
Ammaco Delta Red 2B

Sulphur Colors

For cotton, fast to washing, crossdyeing, etc.:

Sulphur Black F Conc Paste
Sulphur Black Sap Powder
Sulphur Blue Paste
Sulphur Blue Sap
Sulphur Direct Navy Blue
Sulphur Brown 2G
Sulphur Brown Sap
Sulphur Brown WF
Sulphur Brown LY Conc
Sulphur Green Sap
Sulphur Yellow BW
Sulphur Khaki all Shades

Acid Colors

For wool, silk, leather, lake making, etc.;

Buffalo Black NBR
Buffalo Black 10B
Buffalo Black 8B
Buffalo Black 3G
Buffalo Black RB
Ammaco Acid Black TR
Buffalo Black AR
Acid Black 4A B
Buffalo Fast Blue R
Buffalo Cyanone 3R
Induline
Resorcine Brown
Fast Brown
Ammaco Acid Green L
Orange A Conc
Orange S Conc
Orange 2G Crystals
Brilliant Scarlet 3R
Xylidine Scarlet
Fast Red S Conc
Scarlet BR
Azo Rubine Extra
Buffalo Fast Crimson R
Azo Bordeaux
Buffalo Fast Fuchsine D
Buffalo Fast Fuchsine G
Buffalo Fast Fuchsine R
Buffalo Fast Fuchsine 6B
Wool Red 40F
Cloth Red G
Cloth Red R
Croceine Scarlet Moo
Lanacyl Violet M
Acid Violet
Buffalo Violet 4B
Buffalo Fast Violet B
Wool Yellow Ex Conc
Azo Yellow A 5W
Metanil Yellow 1955

Chrome Colors

For wool, fast to light, fulling, etc.:

Buffalo Chrome Black 2B N
Ammaco Chrome Black BN
Alizarol Black 3G
Alizarine Blue G
Alizarine Dark Blue GN (*Suitable for Navy*)
Alizarine Dark Blue RBN
Alizarine Bright Blue 3R YN
Serichrome Blue R
Alizarol Brown B
Alizarol Brown RB
Buffalo Chrome Green CB
Serichrome Green B
Ammaco Alizarine Orange WB
Ammaco Alizarine Yellow 331
Alizarol Yellow 3G

Basic Colors

For leather, paper, lake making, cotton printing, etc.:

Brush Blacks
Methylene Blue BS Conc
Ammaco Basic Navy Blue DA Conc
Bismark Brown Y Ex.
Bismark Brown 53
Ammaco Victoria Green WB
Chrysoidine Y Ex.
Chrysoidine 3R
Safranine A
Ammaco Safranine BL
Methyl Violet

Aniline Colors—Miscellaneous

Nigrosines
    Water soluble, blue and jet shade
    Spirit soluble, blue and jet shade
Oil Blacks
Chrysoidine Base
Victoria Green Base
Oil Colors
Fur Black
Fur Brown

Coal Tar Chemicals

The Company is manufacturing a number of coal-tar chemicals, which are used in textile or other industries; among which are the following:

Aniline Oil
Aniline Salt
Beta Naphthol
Dinitro Phenol
Diphenylamine
Dimethyl Aniline
Hydroquinone
Meta Phenylene Diamine
Meta Toluylene Diamine
Nitro Benzol
Paranitraniline
Paramidophenol
Para Phenylene Diamine
Resorcin
Thiocarbaniline
Thiocarbtoluide
Thiocarbxylide

Intermediates

Among the intermediates manufactured by the Company are the following:

Amido Salicylic Acid
Benzidine
Chromotrop Acid
Dinitro Benzol
Dinitro Toluol
G Salt
H Acid
Koch Acid
Metanilic Acid
N W Acid
Naphthol Sulphonic Acid (1:5)
Ortho Toluidine
Phenyl Hydrazine Sulphonic Acid
Paramido Acetanilide
Phenyl Acid
Picarmic Acid
Pseudo Cumidine
R Salt
Sulphanilic Acid
Schaeffer Salt
Xylidine

Barium Products

These are manufactured by the Rollin Chemical Co. and among those regularly produced are:

Barium Chloride
Barium Carbonate
Barium Chlodire
Barium Nitrate
Barium Sulphate

Other products of this factory are:

Sodium Sulphide Conc
Caustic Soda

Textile Specialties

The Company also manufactures a full line of:

Textile Gums
Liquid Softeners
Sylphonated Oils, Single and Double
Soluble Starch

Gums

Arabic
Ghatti
Guaiac
Indian
Karaya
Mastic
Olibanum
Senegal
Tragacanth

Oils, Softeners and Finishers

Turkey Red Oil 85% and 50%
Tetrol
Sulphonated Corn Oil 85%
Softener No. 6, 8A
Nainsook Softener
Concen Size
Softener T
Soluble Tallow
Vegetable Tallow
Rosin Size
Ricinola Oil No. 50
Gelose
Para Soap

IMPERIAL COLOR WORKS, INC.

1328 Broadway, New York

Prussian Blues
Milori Blues
Bronze Blues
Chrome Yellows
Chrome Greens
Para Toners and Lakes
Toluidine Toners and Lakes
Scarlet Lakes
Violet Lakes
Blue Lakes
Green Lakes
Red Lakes
Logwood Extract
Logwood Crystals
Hematine Crystals
Hematine Extract
Fustic Extract
Fustic Crystals
Hypermic
Wool and Leather Yellows

BINNEY & SMITH CO.

81 Fulton St., New York

Products of The Meth-o-lene Co., Inc.

Methylene Blue
Methylene Green
Methyl Violet 2B

DICKS, DAVID CO.

302 Broadway, New York

Methyl Violet IS
Methyl Violet 4BX
Methyl Violet 6B
Sulphur Brown
Sulphur Black
Direct Blue
Direct Green
Alizarin Yellow
Mikado Yellow
Stilbene Yellow
Fuchsine
Magenta
Khaki
Solube Water Blue

THE CALCO CHEMICAL CO.

Woolworth Building, New York

INTERMEDIATES

Nitro Benzol, Commercial
Nitro Benzol, Redistilled (Oil of Myrbane)
Aniline Oil
Aniline Salt
Dimethylaniline
Dinitro Benzol
Metaphenylenediamine
Beta Napthol
Sulphanilic Acid
Naphthionic Acid
Nitro Zylol
Xylidine
Paranitraniline

DYESTUFFS

Acid Colors

Scarlet 2R
Scarlet 2RX
Orange II
Bordeaux B
Crimson Y
Bordeaux 2BX
Tartrazine

Chrome Colors

Yellow
Orange
Green
Brown

Basic Colors

Methylene Blue
Methyl Violet

Direct Colors

Orange R
Maroon Red
Red
Chrysamine
Violet R

Lake Colors

Lake Scarlet 2R
Lake Scarlet 2RX
Acid Orange
Bordeaux B
Methylene Blue
Methyl Violet

ZOBEL COLOR WORKS

2nd Ave. and 9th St., Brooklyn, N. Y.

Methyl Violet
Methylene Blue
Malachite Green
Fuchsine (Majenta)
Bismarck Brown R and Y
Chrysoidin
Indigotine
Indigo (Paste and Extract)
Purple Lake
Scarlet Lake
Green Lake
Blue Lake
Orange Lake
Permanent Red
Persian Orange
Scarlet Pulp
Cutch Extract
Nigrosine Jet and Blue
Induline
Silk Blue
Congo Red
Sulphur Black

MARDEN ORTH HASTINGS CO.

61 Broadway, New York

Logwood Chips, Oxidized & Unoxidized
Logwood Extract
Hematine Extract
Hematine Crystals
Fustic Extract
Fustic Extract A
Aurantine Powder
Aurantine Paste
Quercitron Extract
Cutch Extract
Sumac Extract
W & S S Nigrosine, blue
W & S S Nigrosine, jet
Sulphur Brown
Fact Acid Red
Fast Red E
Orange II
Anthracene Acid Brown G
Alizarine Yellow RW
Ponceau 2G
Ponceau R
Croceine Scarlet
Croceine Orange
Amaranth A
Amaranth B
Direct Claret
Congo Rubine
Congo Red
Chrysamine G
Benzo Brown
Benzo Orange
Direct Green
Diamine Blue BB
Oil Mahogany No. 3052

Oil Yellow D
Oil Orange
Oil Scarlet
Oil Blue
Oil Green
Oil Red No. 3
Oil Red No. 4
Oil Black, jet and blue shades

A. K. KLIPSTEIN & CO.

644 Greenwich St., New York

Acid Dyes

Indigo Extract BF
(made from Synthetic Indigo)
Induline AK
Azo Rubine
Brilliant Scarlet
Croceine Scarlet
Amaranth
Acid Wool Orange Paste
Acid Wool Yellow Paste
Victoria Blue B
Wool Green S

Basic Dyes

New Fast Blue RS
Patent Phosphine GG
Methylene Blue O Concentrated
Methyl Violet KA
Auramine O
Rhodamine B Extra
Rhodamine 6G Extra
Malachite Green AK

Chrome Colors

Gallocyanine 20% Paste
Flag Blue
Chrome Fast Black PWRL Concentrated
Chrome Fast Yellow G
Chrome Fast Yellow O

Direct Colors

Chrysophenine

Sulphur Dyes

Alpha Black
Zeta Black
Sulphur Brown BF
Sulphur Cutch BF
Sulphur Khaki BFY
Sulphur Khaki BFB
Sulphur Green BF
Zeta Blue, Green Shade
Zeta Blue, Red Shade

Vegetable Dyes

Fustic Extract
Logwood Extract
Logwood Crystals
Hematin Crystals
Super Hematin
Sumac Extract
Colorless Sumac Extract
Quercitron Extract
Quadruple English Archil Extract

Fast Fat Dyes

These dyes are made expressly for us by the Society of Chemical Industry in Basle, Switzerland:

Ciba Synthetic Indigo 20% Paste
Ciba Blue 2B 51% Paste
Ciba Blue 2 BD 16% Paste
Ciba Violet B 10% Paste
Ciba Violet B 100% Powder
Ciba Blue Green Shade
Cibanon Olive B Paste

INTERMEDIATES

Nitro Toluol
Dinitro Toluol
Meta Toluylene Diamine
Diamine Developer C (Crystals)
Toluidine
Aniline Oil
Para Phenylene Diamine
Oxide of Iron

ARNOLD, HOFFMAN & CO., INC.

61 Broadway, New York

Products of Mathieson Alkali Works, Inc.

Soda Ash, 58% Light Dense
Soda Caustic, Solid & Ground
Soda Crystal Carbonate
Soda Virginia Non-caking
Soda Bicarbonate
Bleaching Powder
Liquid Chlorine
Caustic Soda, Solid & Stocks
Castner Electrolytic Process
70% Test, 99½ Pure

Products of Nitrogen Products Co.

Sodium Ferrocyanide
Sodium Ferricyanide
Sodium Cyanide, C. P.

Products of Anchor Color & Gum Works

Starch
Dextrine
Gums
Softeners
Oils & Sizings
Special Products for Textiles
Pure Pigment Colors
Indigo
Cutch & Indigo Extracts
Natural Gums

DYE PRODUCTS AND CHEMICALS CO., INC.

200 Fifth Ave., New York

ANILINE DYES

For Wool

Napthol Green
Newark Scarlet (*Biebrich*)

Ponceau Scarlet
Acid Yellow
Chrome Blue Black
Chrome Brown
Copper Purple

For Natural Silk

Chrysoidine
Napthol Green
Newark Scarlet (*Biebrich*)
Ponceau Scarlet
Acid Yellow
Eosine

For Artificial Silk and Cotton

Bismark Brown (*Red and Yellow Shades*)
Chrysoidine
Eosine

For Leather

Bismark Brown (*Red and Yellow Shades*)
Chrysoidine
Newark Scarlet (*Biebrich*)
Ponceau Scarlet

For Paper

Bismark Brown (*Red and Yellow Shades*)
Chrysoidine

ALLIANCE CHEMICAL CO.
176 Federal St., Boston, Mass.

Fast Chrome Red
Fast Chrome Green
Fast Chrome Yellow

J. S. YOUNG & CO.
Hanover, Pa.

Yellow, Blue and Black
Natural Dyestuff for Cotton, Wool and Silk

ATLANTIC DYESTUFF CO.
Burrage, Mass.

Sulphur Blacks
Sulphur Browns
Alizarine Yellow Powder
Alizarine Yellow Paste
Direct Blues
Direct Greens
Azo Fuchsine
Chrysamine

JOHN CAMPBELL & CO.
75 Hudson St., New York City

Black Ex. Comc. Silk White
Yellow C. Silk White
Brown 6 G
Brown B
Green C Silk White
Blue S. W. Silk White
Red B

SWISS MANUFACTURE OF COAL-TAR PRODUCTS.

The manufacture of coal-tar dyes and medicinals in Switzerland is confined chiefly to the city of Basel. The four large companies in that city engaged in this branch report profits far in excess of any sums hitherto recorded. Thus the well-known Sandoz Color Works paid at the close of 1916 dividends of 25 per cent. and in addition a bonus of $200 per share. This was after granting a bonus of $80,000 to the working staff and setting aside ample sums for various funds.

These conditions are causing alarm in German manufacturing circles, especially when taken in connection with the existing embargo on the exportation of nearly all chemical and pharmaceutical products from the Empire. A German trade journal expresses openly the fear that "the world's markets have found new sources of chemical products, and will learn to do without those of German origin if exportation is not made easier as quick as possible."

AMERICAN
DYESTUFF REPORTER

A Weekly Publication devoted to
DYESTUFFS, COLORS and ALLIED CHEMICALS
Circulating Wherever Dyestuffs are Used

Vol. I New York, November 19, 1917 No. 7

Color-Making Developments in France

(The French Chamber of Commerce states that the munition plants will be turned over to dye-makers at the conclusion of the war.)

In the past three years, France has succeeded in turning out in large quantities, and with many improvements articles for home consumption which before the war came entirely from across the Rhine, and the French did not believe they could manufacture. By the use of the munition plants, these articles are to be placed in world competition after the war at prices that, says the Paris Chamber, will surprise foreigners.

The Association Nationale d'Expansion Economique was founded on December 14th, 1915, under the patronage of the Paris Chamber of Commerce, and with the help of the principal economic associations it began by making enquiry into German competition. The Société d'Encouragement Pour l'Industrie Nationale organized two exhibitions of French products as substitutes for foreign articles, one in June, 1916, and the other in June, 1917. At this year's exhibition more than 100 firms were represented.

French manufacture of pharmaceutical products and matter for dyeing and coloring purposes has largely benefited by the spread of munition factories. Large works have been built in the suburbs of Paris and in the neighborhood of Lyons, St. Etienne, Roanne, and Annonay, for the preparation of acids, tar products, and explosives. These factories will be easily transformed in peace times into works for chemical and pharmaceutical products. The same engineers and workmen who are now manufacturing smokeless powder and melinite will be able on these premises with the same machinery to produce imitation silks, nitrobenzene or aniline.

Many large and influential societies have been organized with a view of extending national production on these lines. The Office des Produits Chimiques et Pharmaceutiques, formed in 1914, by dividing between the different firms the existing stocks of raw materials and the products left at the disposal of manufacturers by the War Office and military authorities, and by obtaining the demobilization of indispensable chemists, has reopened many factories that have been closed, or whose output had been vastly decreased since the beginning of the war. This association has provided for the manufacture of phenol and tars, and while helping with the making of phenol for synthesis, has also increased the output of picric acid, trinitrophenol, and other explosives.

The Syndicat des Matieres Colorantes, formed during the summer of 1915, includes the principal societies concerned in chemical manufactures, mining, metallurgy, coke furnaces, gases, and carbonization, dyeing materials, and leather, organic chemical manufactures, colors and printing inks, paper and wool, silk and cotton materials.

The Compagnie Nationale de Matieres Colorantes et Produits Chimiques, with a capital of 40,000,000 franc, has undertaken to supply French home-made products in place of those sent into the country by Germany prior to the war. This society has signed a contract with the government with a view to utilizing fac-

tories for explosives which have been built for the requirements of the war. On the conclusion of peace, the Compagnie will be given possession by the State of a certain number of munition plants. On the other hand, the company is bound to assure the production of coloring matters and dyes, and to pay over to the government a share of profits stipulated in the contract.

The Problem of Stains on Textiles

(*This article is reproduced from a recent issue of "Fibre & Fabric" and should be of particular interest to those who have written the "Reporter" asking for suggestions on the removal of spots on textiles.*)

In the weaving department stains may arise from faulty sizing, such as the rollers of the sizing machine being out of true and squeezing unevenly, so that portions of the warp retain more size than others. and may not be perfectly dried on these places. Wet size is well known to decompose very quickly, with the result that mildew forms, and if this is unnoticed at the time it will affect the cloth in either the subsequent dye or finish.

Sunshine stains are common enough on goods of all descriptions that have been exposed to direct sunshine, the cuttle edges or folds being the places generally affected, and more often occurring in greasy cloths than in those which have been scoured and dried out. Such places when dyed usually show up as light bars or stripes, exactly corresponding in size to the portion which has been exposed. Of course, when mordanted or dyed material is exposed to the sun's rays in a wet state, the stains are produced quicker than on dry goods, owing to the parts reabsorbing moisture from the non-exposed portions as fast as the sun dries them. An instance occurred to the writer where the dyer could not get his pieces level at any cost, cloudy places appearing after dyeing all over the cloth. The goods were high-grade woolens that had been soap scoured and dried out, and were perfectly clean in every respect. However, after trying all sorts of ways, the dyer, acting upon his own initiative, sent for two new undyed pieces, and boiled these up for ten minutes in a fairly strong bath of sulphuric acid only. On taking these out and examining, the fault was seen at once; big, cloudy, dark marks, had developed all over the cloth. These were oil marks from the soap residues which had never been properly rinsed from the goods, and while quite invisible in the form of soap, they showed up plainly when the soap was decomposed by the boiling acid, leaving the oil on the cloth in patches. The cause of this was the alteration of the scourer's wages from a fixed wage to payment by the piece, and in his haste to make more money under the new scheme the goods had been insufficiently washed off.

Rust and metal stains usually come from overhead droppings in the case of rust, where steam has condensed upon some rusty pipe or shaft. While fresh these stains are easily removed, and if the material is to be dyed in an acid liquor they can safely be ignored, as the acid will dissolve them. If, however, only neutral liquors are to be used, or the shade is a very delicate one when dyed, the stains should be taken out by hand, using a dilute solution of oxalic acid followed by a boil up in clean water before dyeing is commenced. Copper stains generally arise from oil droppings from brass bearings, where the friction has caused some grinding of the bushes. If new, the stains come out in the scouring, but if they have dried into the cloth then an actual verdigris stain is formed, and this is hastened if the lubricating oil used has acid properties. Mineral oils alone have no action upon metals, but in the refining of these oils, acids are often used and to remove the last traces is a very difficult matter.

Once a verdigris stain is formed the copper salt acts as a mordant, and such places are invariably darker in color after dyeing.

When piece-goods are carbonized the stains which sometimes form are very troublesome, and carbonizing itself is a very dangerous process for textiles to undergo, so that wherever it is possible to carbonize in the wool form this should be done. Of course, no fabric can be carbonized which has cotton lists, as these are destroyed along with the other vegetable matter, and the absence of a smart list down the sides of the cloth greatly detracts from its appearance. The common agents for carbonizing are—chloride of alumina for such cloths as have been wool dyed, and sulphuric acid for goods which require piece dyeing afterwards. The commercial chloride of alumina very often contains impurities in the shape of copperas, etc., which are capable of producing dark stains which cannot be afterwards removed, so that in every case the chloride should be tested to see that it is free from other metallic salts. Previous to treatment with aluminum chloride, the goods must be quite clear of any soap residues, as these unite with the alumina to form sticky alumina-soaps, which are quite insoluble in water and adhere to the goods like bird-lime. After the fabric is impregnated with the carbonizing agent it should be dried as quickly as possible, and then thoroughly well washed to neutralize it. In the acid state damages readily occur; drops of water, soap splashes, or sunlight will all cause stains, and the safest plan is to get carbonized stuff dried, washed, and out of the way.

Most of the bodies used in the textile industry, whether for yarns or machinery, with the single exception of petroleum, are bodies of constant and well known, because of fairly simple, constitution. With petroleum, however, the case is different, even including the refined and expensive brands. Compounds of sulphur and nitrogen, together with dissolved solid paraffins, are almost invariably present, and these contribute to the staining powers of the oil to an extent out of all proportion to the percentage of it which they constitute. In any case the oil in the stained places resists all the scouring employed as a preliminary to bleaching and dyeing. It is unsaponifiable and insoluble, and much of it is non-volatile, while the stains resist the bleaching agents used after the cleansing processes as effectually as they do the alkali boil. One of the reasons why petroleum stains are not visible upon grey cloth is generally attributed to the evaporation of the more volatile constituents which have previously held the less volatile bodies in solution. Singeing and pressing develop paraffin stains at once, by driving off the volatile portions and sending the residue deeper into the cloth. Even the fermentative processes with malt substances used for the breaking down and removal of size, have no effect whatever on petroleum stains, says the *Textile Recorder.*

There have been many experiments and suggestions to remove petroleum stains. The best are undoubtedly those which consist in adding to the scouring dyes after weaving a certain quantity of aniline of phenol, or any of the few cheap substances which have a solvent action upon mineral oils. Their drawback is uncertain in action, while it is obviously impossible to add any considerable proportion of them to a cleansing lye. Moreover, a fault these solvents have is that of re-depositing what they have previously dissolved when largely diluted with water, such as in rinsing out. Prevention is at any time better than cure, and it is commonly stated that if the mineral oil is kept down to under 30 per cent of the total lubricant, the removal of the vegetable oil which forms the remainder can be readily done in the lye-boil. Theoretically the soap formed by the saponifiable portion entangles the mineral oil and carries it away mechanically, but there is no doubt that dyers, printers, and finishers of all classes of textiles would be unanimous in favor of the total abolishment of paraffins.

Unfortunately, mildew is too well known in hot weather. The fungus which forms it is very partial to slightly alkaline cloths, so that scoured woolens and vat-dyed indigos are specially liable to it. Acids of any kind stop its development, and if goods must be left wet, say, at holiday times, they are safer for a slight sour in the rinsing. Damp, darkness, and warmth favor its growth, especially on goods containing size. Where gelatine or farina, etc, form the size, mildew first attacks these, so that in the incipient stages it can be stopped. When these bodies are exhausted, however, the fungus attacks the gelatinous parts of the wool fibre, and when this stage is reached is incurable. Chalk stains originate in the use of colored chalks for marking grey pieces, particularly in the mending room, where missing threads are indicated by a chalk line drawn on the cloth. Other stains are caused by chalking on the distinguishing figures and letters at the ends, before the numbering is sewn in. If all chalks were simply made from organic colors together with a little pipe-clay or chalk, such stains would not occur. The commercial chalks sold for marking purposes of all kinds are, however, frequently composed of paraffin wax as a binding agent, together with mineral colors, such as red iron, acids, copper, and aresnical greens, ferrocyanides of iron, and chromates of lead. This latter is the most mischievous, as under the influence of steam and heat the sulphur naturally present in the wool changes it to an indelible black stain of lead sulphide.

Difficulties in Bleaching

Very disagreeable results may come about through the cellulose undergoing oxidation during the boiling-out or bleaching and oxycellulose being formed. The modification of the cellulose that takes place in this way is accompanied at the same time with a weakening of the fibre, and once the alteration has taken place, it cannot be remedied. Consequently, the greatest care requires to be exercised, with the object of preventing the formation of oxycellulose.

Dilute solutions of hypochlorites at the ordinary temperature affect cellulose slightly. Concentrated solutions, however, or prolonged treatment with hot solutions, in conjunction with atmospheric carbonic acid, readily produce oxycellulose. The affected fibre, besides losing strength, decreases considerably in elasticity. When the oxidation has progressed beyond a certain limit, the structure of the fibre becomes completely destroyed.

To prevent the formation of oxycellulose during the course of bleaching, at least one necessary precautionary measure to be observed is that, when the bleaching liquor is being replenished with a quantity of concentrated liquor, this should not be allowed to come into direct contact with the material. In much the same way, the alkaline peroxides, when in concentrated solutions at high temperatures, can affect the cellulose. The bleaching liquor in use should be quite clear and free from undissolved particles of bleaching powder, for these, if present, may become attached to the material and cause very serious damage.

In the boiling-out operation, the only fear of inducing the formation of oxycellulose arises through the presence of air in the kier during the boiling. A knowledge of this suggests the preventive measures to be observed. Oxycellulose does not make its presence apparent by imparting any coloration to the material, and often enough the fact of its occurrence only comes into evidence at a later stage.

If the affected material has to be dyed, say with the substantive dyestuffs, the defect becomes very apparent, the modified portions taking up very little coloring matter, if any at all, and remaining, therefore, almost white, or at any rate very much lighter in shade than the normal portions of the material. There are a number of reactions available for the detection of oxycellulose.

(*Continued on page* 13)

Inquiry Department

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department, for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Question—What is the action of Turkey Red Oil in the dyebath of direct colors and why would ordinary soap not do as well?

Answer—Turkey Red Oil being Sulphonated Castor Oil which has been neutralized with soda and ammonia is closely related to the true soaps but yet has some very distinct properties. When soaps are partly neutralized by contact with acid materials there is an immediate tendency for the fatty acid to separate, while in the case of a sulphonated oil, an emulsion results. The emulsifying power of the sulphonated oils is much greater at all times than soap and a particularly powerful action is exerted on the waxy matters of cotton as well as on the gum of silk, this in itself gives the effect of a clean fibre for the dye to combine with. Then all water from natural sources contains lime and magnesia which form insoluble lakes with dyestuffs and waxy soaps with the ordinary soaps. Although the quantity may be small the effect is a loss of color and brilliancy. The sulphonated oils, on the other hand, form with the earthy bases colloidal substances which remain in emulsified form and the affinity is so great that the dye is left free from their influence. Since the dye is allowed to come into close contact with the fibre a heavier shade is produced, further, the colloidal matter has a restraining influence on the process and promotes level dyeing. Finally, the slight amount of oily matter is absorbed by the fibre and gives a brightening effect. The total of these effects produces a result which makes the use of Turkey Red Oil advisable, but as with all good things an excess must be avoided, as the gummy feel and strong odor is likely to over-balance the good effect. It is always safe to use 2% of a 50% oil in the dyebath and with sulphur dyes this may be doubled.

Question—Would it not be possible to use Aniline Salt black on goods that were to be coated heavily with finish for book covers, and what is the best way of applying it?

Answer—It is well that you suggest a fabric that is not likely to require fastness to either washing or rubbing (as the finish protects it) for the old one-dip black can never be made fast to either of these influences, although the oxidized and steamed varieties would be satisfactory. While Aniline Black can be dyed in one bath on grey cotton, better results are obtained by dyeing it on a bottom of a direct blue or black. The dyebath is set with 2½ lbs. of Aniline Salt, 3 lbs. Bichromate of Soda and 3 lbs. Sulphuric Acid per 100 lbs. of goods. The cotton is worked for one hour cold, then for 15 minutes at 120 F. After dyeing, a good rinsing and soaping follows. The black is full and bloomy but does not stand washing very well, yet, under a heavy finish would make a cheap, fast black for the purpose mentioned.

Question—What method or methods would you advise in the dyeing of silk?

Answer—There are a number of different methods and are as follows:

First Method—A dye bath is made with boiled-off liquor, to which is added a little sulphuric acid, to make the bath slightly acid, together with the required amount of dyestuffs. This bath is started lukewarm and is gradually heated up to the boil. As a rule the bath will be exhausted of color. The silk is then taken out, rinsed and is passed into a weak acetic bath to brighten it. The dyebath may be used again for further lots. Where boiled-off silk is being dyed the bath may be made with Glauber's salt in place of boiled-off liquor. This method is applicable to all acid and azo dyes.

Second Method—The dye bath is made

with clean water, to which a little acetic acid is added, or boiled-off liquor broken with acetic acid is used. Start the dyeing at a lukewarm heat, work up to the boil, then rinse, brighten in an acetic acid bath, and dry. This method is available for the eosine range of dyes.

Third Method—A dye bath is made with the dyestuff and ¼ oz. of soda ash or borax per gallon of liquor. Work the silk in this at the boil for an hour, lift and pass into a bath of ¼ oz. sulphuric acid per gallon of water to raise the color, then dry. This method is applicable to the alkali blues and violets.

Fourth Method—Prepare the dye bath with 1½ ozs. soap and 1 dram of soap per gallon of liquor, with the necessary amount of dye stuff. Start the dyeing at a lukewarm heat, then raise nearly to the boil and work to shade, rinse and dry. This method is very useful for direct colors.

Fifth Method—Add a little acetic acid (1½ ozs. to one gallon) to the dye bath, start at a lukewarm heat and work up to the boil, rinse and dry. This method is applicable to all those direct dyes which are able to resist a weak acid.

Sixth Method—Dye in a bath with a little acetic acid, or use a boiled-off liquor bath broken with acetic acid. Start lukewarm, heat up to the boil, rinse and brighten with acetic acid. This method may be followed with such dyes as benzoazurine and brilliant azurine, which can be dyed in an acid bath and are fast to acids.

Seventh Method—Use a plain water bath starting lukewarm and finishing at the boil, or a boiled up liquor bath broken with a little acetic acid may be used. After dyeing brighten in the cold with acetic acid. This method is used with all basic dyes.

Standard Color Card Adopted

Announcement has been made that the Finishers' Association has formally adopted the standard color card of the Textile Color Card Association of America, 354 Fourth Avenue, New York. As the standard color card has previously been adopted by the National Association of Finishers of Cotton Fabrics, the action just taken by the Association points the way to a complete color co-operation between dyer and converter. No doubt, within a short time the entire cotton trade will follow the woolen, silk, millinery and hosiery trades in using the same colors. Standard colors is an American idea and already means much to manufacturer, retailer and consumer by preventing off shades which do not sell readily and when sold prevent color harmony in a costume.

A manufacturer said to us, "If the American consumer could imagine the amount of detail necessary to construct and operate a dyestuff plant, I am sure he would smile and inquire of the manufacturer, 'How could you do it?' "

Imports of colors and dyes for the eight months ending August 31 aggregated in value $1,825,434, as against $3,071,213 during the same period last year. Included in these imports were 2,240 pounds of alizarines, valued at $10,545.

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Non-Partisan or House Organ?

Can the AMERICAN DYESTUFF REPORTER become firmly established as a non-partisan organ of the trade?

Affiliated with no particular company, can we hope to gain the interest of the actual consumer of dyestuffs and allied chemicals?

The AMERICAN DYESTUFF REPORTER is absolutely non-partisan, and is published with the aim of bringing to the consumer a clear statement of facts and developments in the dyestuff industry.

The opinion of each individual reader will decide the future of the REPORTER, and we ask others for an expression of their views.

Of the many letters which we have received, we publish a few which have a more or less direct bearing upon the subject.

Gentlemen:

Your publication has come to my attention and I will give you my opinion. Your recent issues have proven of much interest to me and I want to say that I wish your success.

I will be pleased to offer you such advice as I am able to give. If there is anything in particular on which you would like my opinion, would be pleased to hear from you.

The above letter was written by the president of one of the largest paper manufacturing plants in this country.

Another letter which came to us from a leading textile dye house has proven of much encouragement.

Dear Sir:

I have received the first issue of the AMERICAN DYESTUFF REPORTER. I believe you have started something of real value to the trade, and I shall look forward to each weekly issue.

Another interesting letter was received from a member of a dyestuff manufacturing plant who is an advocate of each company having a trade-paper or house-organ.

Gentlemen:

I received your little paper called the AMERICAN DYESTUFF REPORTER and I want to tell you truthfully what I think of it.

First I want to say that there is no need of your publication in the field. Then, too, you are trying to show up conditions in the industry, and no one wants that done.

We all know that some crooked firms are engaged in the dye industry, and all of the other things you say, but we don't want to be told of it.

You can't make your paper of value to the consumer, as he don't want to be told the true state of affairs as you are trying to do.

The best thing to do is to say nothing that might make the consumer think and keep the truth to yourself.

We submit the above letter without comment.

As a non-partisan organ of the trade, the REPORTER can give you a true statement of the development of each individual company.

Would you not rather be told of conditions in the industry than be told of conditions in one particular company?

The REPORTER now treats on generalities, but our policy in this particular will be influenced by conditions in the industry.

When the industry shall have become systematized and the consumer shall have learned conditions, then can the REPORTER give you service of a technical nature equal to that of any organ of an individual company.

Technical treaties that will appear in the REPORTER will be written by men who know the industry and who are not bound to serve any particular company.

Notes of the Trade

The Prospect Dye Works, Reading, Pa., has awarded a contract to the Metropolitan Edison Company, of that city, for their supply of power. Attention is called to the possibilities of the use of electric power in such plants where the greater part of the steam generated is utilized in their various processes rather than for power.

The Stratford Chemical Works, Inc., Newark, N. J., have been incorporated, to manufacture chemicals and allied products. The capital is $250,000. Incorporators; William A. Keener, Newark; Z. Burns and Sigmund Weitzenblum, New York.

F. E. Atteaux & Co., manufacturers of chemicals, have awarded a ontract for the erection of a new two-story reinforced-concrete factory building, about 65 x 170 feet, at South Boston, Mass.

Fire recently destroyed a portion of the plant of Hine Bros. Color Works, at Cook's Falls, N. Y., with loss estimated at about $8,000.

We are in receipt of an inquiry from a paper house asking the Reporter to tell them where they can obtain Ultramarine Blue.

Information on this subject from manufacturers will be appreciated.—*Editor.*

The Feindel & Pasquier Chemical Corp., New York, has been incorporated to manufacture chemicals. The capital is $10,000. Incorporators: E. E. Feindel and M. Pasquier, 431 West Twenty-fourth street, New York.

The Arco Chemical Co., New York, has been incorporated to manufacture chemicals. Nominal capital, $5,000. Incorporators: J. N. and E. Goetshoff and A. Radtzky, 982 Prospect avenue, Brooklyn.

Merck & Co., Lincoln avenue, Rahway, N. J., manufacturers of chemicals, have awarded a contract for the erection of a new one-story brick addition to their plant, about 44 x 100 feet, to cost $12,000. Salmond Bros., 526 Elm street, Arlington, are the contractors.

One of the largest dyestuff manufacturing companies in this country sends us the following interesting announcement regarding their development of certain dyestuffs.

They inform us that they are manufacturing a new Black, H Extra, which product, they say, compares favorably with that formerly imported.

They are also offering another color known as Black B. This they say, is an acid dyeing black that is especially suited for piece dyeing where great fastness to light without chroming is desired. This color is also used for knitting yarns and hosiery. They assure us that this black is very satisfactory as a silk dye.

Holders of two-year first mortgage 6 per cent. notes of the Federal Dyestuff & Chemical Corporation have been requested to deposit these notes with the Equitable Trust Co. of New York. The purpose of this action is to co-operate in protecting the noteholders' interests in the property in connection with the recent appointment of receivers.

A Boston office has been opened by Bachmeier & Company, Inc., dealers in dyestuffs. This office, which is located at 261 Franklin street, is necessitated by the growing business of the concerns in the New England territory. It will be in charge of J. A. L. Wallon, a resident of Boston.

The following letter was received November 14th from a manufacturing plant in New Jersey:

> Gentlemen:
>
> In one of your issues of the Reporter we find in the columns devoted to questions of your readers that a spirit soluble red dye is wanted.
>
> We are manufactufacturers of Majenta, and are also placing on the market two spirit soluble reds.
>
> If any of your readers are interested we will be glad to forward samples to you.

One of the best known dyers in the leather field informs us that the cause of variation in color is not due to the quality of the color, but the employment of insufficient help.

He further assures us that the dyes and the formula used could not be improved upon.

The color most in demand now and for spring is a soft tone of Brown.

The E. Virgil Neal Chemical Works, 110 West Fortieth street, New York, has plans prepared for the construction of a new addition to their chemical manufacturing plant at Van Dam street and Borden avenue, Long Island City. John M. Baker, 9 Jackson avenue, Long Island City, is the architect.

Imports of logwood for August amounted to 5,547 pounds, valued at $134,376, as against 22,358 pounds, valued at $848,900, during August last year.

Thorough Rinsing Is a Necessity

No trace of soap should be left in goods by the time they reach the dyeing operation. All soap residue is decomposed in an acid liquor, and the fatty acid so liberated at once attaches itself to the fibre, and it that way becomes an effective hindrance to uniform dyeing. After treatment with soap and soda, the material should, therefore, be most thoroughly rinsed with water, and for the best results the water used for the purpose should be soft, otherwise limesoaps will be formed on the wool, and these are very difficult to remove and may, in turn, give rise to faults in dyeing. Moreover, it is very advisable that the material should be rinsed as soon as possible after the soaping, for prolonged contact with the alkaline liquor might cause subsequent faults.

The operation of carbonization is also likely to give rise to faults. Again, in this instance, the material should be washed well after the treatment with acid for the removal of the vegetable fibres present, for there appears to be no doubt that prolonged contact of the wool with the acid exercises on that fibre an action almost comparable to that it produces on the vegetable fibre. At any rate, goods which have just been carbonized should not be left for any time in close proximity to goods which have not to be submitted to carbonization, for the latter will quickly absorb acid in some way from the former, and so give results after dyeing of such a character that the only remedy will be to dye the lot black.

Other faults that are likely to be encountered may be due to iron or copper marks on the cloth. The main comment to make concerning these possible causes of faults is that all endeavors should be made to prevent their occurrence, for in the observance of that advice lies the line of least resistance. Iron stains may, of course, be removed at times but the attempt involves treatment with oxalic acid, and should the solution be too strong the fibre becomes adversely affected, and if too weak the stains are not removed, and so the curative measures are more difficult than the preventive.—*The Dyer & Calico Printer.*

The Conditioning House

A Brief Summary of What a Conditioning House Is and What Direct Relationship It Has to the Dyestuff Industry.

For the benefit of those not familiar with the subject, it may be briefly stated that a Conditioning House is an institution conducted in the interests of the Silk industry. It is primarily a place where textile tests are made impartially in the mutual interest of both buyer and seller. Both parties agree that the report shall be the basis on which settlement is made. Everything connected with the work must be done with one sóle object in view—the obtaining of results in terms of measurable quantities without regard to who is benefitted thereby. While the institutions in various countries were all primarily devoted to silks, it was not long before the general textile interests saw the advantage of having their testing done by a semi-official institution free from all commercialism. The many problems of textile manufacturing, dyeing and finishing, while often solved by the men connected with the dyestuff dealers, had but one object in view—the introduction of the materials sold by that firm.

While some manufacturers and dyers were content to thus place themselves in the hands of their supply men, others preferred to remain independent and buy where they found the best bargains. The result has been that the chemical and microscopic work of the Conditioning House has increased to such an extent that it was necessary to make a feature of this branch of the textile industry. It happened that the man selected to conduct this department had been for many years in charge of the laboratory of one of the large dyestuff houses, and his familiarity with dyes and dyeing processes led him to add dye testing to routine tests of the laboratory. The idea of having dyestuffs tested under the auspices of such an institution could not fail to appeal to the users and dealers and the result has been a volume of clients that at times distanced their efforts to enlarge or to train assistants to take care of the work.

We recently visited the United States Conditioning and Testing Co., which is the formal name of the American institution, and were amazed at the extent of the work. The vaults contained over two million dollars' worth of silk in process of testing, there were dozens of weighers, samplers and porters getting the lots ready and on the top floor were many rows of ovens with balances attached where the moisture is determined. In another place were rows of kettles where the gum is boiled off, machines with reels and spools where winding tests are made, others that measure the size, and delicate serimeters that give the elasticity and tenacity or stretch and break test. On the floor below is a room of constant temperature and humidity where the most careful textile and paper tests are performed and where research along various lines is condusted.

The chemical laboratories are not of the kind we see in illustrated catalogues, but show evidence that work is in progress. The routine analysis of mill supplies, such as soaps, oils, finishes, etc., is conducted in the ordinary manner and needs no comment.

Dyes are tested in two ways, by actual dyeing of a definite amount of the dye on a skein of uniform weight, by the regular process for that dyestuff, and also by colorimetric measurement. Dyeings are made in porcelain beakers heated by a Calcium Chloride bath. They are turned by glass rods and only water purified by the Permutit process is used. Mordants are prepared separately in large lots and large lots of materials are dyed in enamelled kettles on gas stoves. Dye tests depend for their accuracy on the sensitivity of the eye and it has been found that few can detect less than 5% difference in strength. For this reason the more exact determinations of strength must be made in a colormeter. Most of the colormetric work is done in the Campbell-Hurley instrument, but for very accurate determinations the Kobel colorimeter and nephilometer is used. Tests were being made of the fastness to light of some army goods under an Ultra Violet ray apparatus which fades in an hour as much as a day in the sunlight. There are a number of Government tests to which manufacturers must conform for both Army and Navy goods, and such tests form part of the daily routine.

The examination of spots and defects in goods under the microscope is very interesting and if demonstration needs to be made the image can be projected on a screen in a darkened room or a photomicrograph be made for future reference. A sample of dyestuff containing salt or dextrine is very striking in appearance under these conditions.

It is hardly necessary to go into further detail regarding this work, but it is certainly a pleasure to come in contact with an organization devoted to clean business, and where the making of profit is not the sole object of its existence.—*Editor.*

Linen Dyeing

(This article appeared first in the "Dyer and Calico Printer" of London, and we are requested to give credit to this publication.)

Like all kindred industries, linen dyeing has altered considerably since the war, although, on the whole, the drawbacks and disadvantages arising from the scarcity of colors is not nearly so bad as extremists represent. Shortly after the commencement of hostilities we were told that the linen dyeing industries would all be closed down until German dyes were again available, and this has proved exaggerated pessimism. Certainly the work is not running as easily and smoothly as when every color was available; all the pre-war shades are not obtainable, and not every brand of a dye can be relied on. Deliveries of dyes are usually in very small quantities. To match a lot of goods exactly to a former shade is really very difficult, but customers are ready to make allowances in this matter. A good many colors now on the market seem to be all right when in the dye-bath, but when subjected to the drying process, the color leaves the fabric, and instead of, say, the desired brown, the result is perhaps a drab or a slate.

In linen dyeing, except in the case of very deep shades or blacks, the goods require to be cleaned out before the dyeing. This is usually done by first a scald in a lime solution, 5 to 10 per cent. of the weight of the goods, followed by a hydrochloric or sulphuric acid sour at ½ to 1 deg. Tw. Paler shades require a caustic soda boil in addition to the lime boil and sour, and only in the case of very bright shades is it necessary to subject the goods to a chloride of lime solution. The chloride of lime bath must always be followed by a hydrochloric or sulphuric acid sour, as a level shade cannot be got from a dip bottom. For very fine qualities of goods the yarns are generally boiled before weaving, and they are then ready for the caustic boil, and this is not nearly so hard on the goods as drastic treatment in the woven state.

Dyestuffs suitable for cotton goods are also suitable for linen goods, with the reservation that it must be borne in mind that the linen fibre is harder than cotton and not so easily penetrated; the absorption of the dyestuffs must, therefore, be retarded as much as possible. In dyeing linens with sulphur colors the quantities of the dyestuffs and salt must be decreased as compared with the proportions used for cottons, and the quantity of sodium sulphide increased. The penetration is improved by a suitable oil or soap. Basic colors are dyed on linen on a mordant in the same way as cottons, but with smaller quantities of tannin, and the process should be carried out at a higher temperature and somewhat prolonged. When dyeing the goods so treated, the quantity of acetic acid should be increased and also amount of alum. The after-treatment is usually done in a boiling hot bath charged with 3/4 per cent bichromate of potash, 2 per cent sulphate of copper, and 4 per cent acetic acid, 2 to 4 ends, then rinse.

Goods intended for blacks require no clearing process before dyeing, and it is for black that direct cotton colors are badly missed, as when dyes were plentiful no black goods except those intended for a highly beetled finish were dyed with logwood. In the case of canvas of poor stiffenings, the goods were entered into the dyebath direct from the loom without any preparation, using, say, 2 per cent of a direct black, 4 per cent Glauber's salt, 1 per cent soda ash, and given 6 ends. When they lay a few hours they were ready for finishing, and as no mordanting or after-treatment was required, a large output was easily obtained. One jigger gives as large an output with the direct colors as two jiggers now with logwood; thus man-power was saved as well as all the preliminary treatments required for logwood colors.

(*This article will be continued in the next issue of the Reporter.*)

Difficulties in Bleaching

(*Continued from page* 3)

Experiments have shown that certain basic dyestuffs, such as Methylene Blue and Magenta, are taken up much more quickly by oxycellulose than by normal cellulose. In this case the intensity of the coloration is an indication of the degree of oxidation which has taken place. Indanthrene Yellow gives a serviceable reaction in a simple manner. Oxycellulose in the presence of a small amount of this coloring matter becomes colored a deep blue when boiled with an 8 per cent solution of caustic soda.

About the simplest means, however, for the detection of oxycellulose in white goods is the steaming test. The affected places becomes very tender, and colored yellowish. Although the strength thus lost cannot be regained, the discoloration may be removed by treating with a dilute solution of bleaching powder or a weak alkaline solution of hydrogen peroxide.

Besides oxycellulose, a product, hydrocellulose, can be formed during the bleaching. It is the result of the influence of mineral acids under certain conditions.

Mineral acids upon undergoing concentration in the material during the drying definitely affect the fibre in making it tender. Thorough washing at the proper time is the preventive measure. Organic acids are far less harmful. The only one to be feared in this respect is oxalic acid, and when it has been employed for removing iron-stains it should be well washed out before the material is dried.—*Possett's Textile Journal.*

Many in Favor of Proposed Meeting of Manufacturers

Favorable replies continue to be received from all parts of the country, says Drug and Chemical Markets, concerning the proposed meeting of the American manufacturers and dealers in colors and dyestuffs. A conservative estimate places the number of dealers in colors and dyestuffs in America at 756 and the number of manufacturers at more than 100. Each of these dealers and manufacturers will be advised of the definite arrangements as they develop and will have the opportunity to co-operate in bringing about the organization of the National Association during the week of January 21, 1918. Included in the partial list of replies given below is one from perhaps the largest manufacturer in America, and encouragement continues to pour in from all directions.

The Stanley Anilin Chemical Works, Lock Haven, Pa.—"In reply to your letter concerning meeting for manufacturers and dealers in American dyestuffs will say that the same is satisfactory to us; also the date of January 21, 1918, or thereabouts, is a satisfactory date. We would be glad to hear more from you on the subject."

The Ault & Wiburg Company, Cincinnati, O.—"We have your letter relative to a proposed meeting for the standardization of American dyestuffs. We have the matter under consideration and you may expect to hear from us further."

Western Aniline Products Company, Company, Chicago, Ill. — "Answering yours of the 18th, regarding the standardization of American colors. We will be glad to co-operate in any way possible, as we are intermediate makers."

M. L. Barrett & Co., Chicago, Ill.—"We will be very glad to work along with the manufacturers and large consumers in promoting high grade goods, all shades and grades at the lowest cost."

National Aniline & Chemical Co., Inc., New York City.—"We will have a representative at the meeting you propose to hold for the standardization of American colors and we should appreciate it if you would be kind enough to advise us in due course as to the time and place of this meeting."

MacAndrews & Forbes Company, New York City.—"The matter of standardization of American colors must necessarily be of interest to all manufacturers of these products and we will be quite willing to have a representative at the meeting of these manufacturers, as indicated in yours of the 18th. Kindly advise of whatever other steps may be taken regarding the proposed meeting."

Holland Aniline Company, Holland, Mich.—"Replying to your letter would state that we believe your idea is a good and practical one and we will try to arrange to be present at the conference. You will undoubtedly keep this matter on file and inform us at least a week ahead of the definite date decided upon."

Frank L. May & Co., Inc., New York City.—"We will be very glad to co-operate with any others during the week of January 21, 1918, on the subject mentioned in your letter of October 18th."

Chas. L. Huisking, New York City.—"We shall be glad to take part in such conference as mentioned in your letter concerning the standardization of American colors, and we thank you for bringing the matter to our attention."

Concerning the Standardization of American-made Dyestuffs

"1. The movement in the drection of effecting a proper standardization of American made dyestuffs has a phase which should be considered by the United States Government in relation to the new schedule of rates of duty established last year, and which may possibly be further advanced by fresh legislation.

"2. It is absolutely essential that the United States Government should align itself with this effort for the standardization of American colors and for the purpose of establishing a range of trade standards on which the new specific duty can be based.

"3. The Deutschland submarine, as is well known, brought over some exceedingly concentrated dyes, which, if invoiced at their proper value, would be subject to the 30% ad valorem impost but which would not pay any more specific rates of duty than an unconcentrated standard type.

"4. For instance—take the case of a dye which would be invoiced in normal times at, say, 20c per lb., but which possibly was five times concentrated. This dye should then be invoiced at $1.00 per lb., and should be subject to 30% ad valorem duty assessment. It would not, however, be subject to any more than 5c per lb. specific rate, or no more on this specific rate than an unconcentrated dye. This would therefore make the cost of this dye, duty paid, $1.35, which divided by five to bring it down to the standard concentration, would make this dye cost 27c, whereas it should be subject, as far as the specific rate is concerned, to a sliding scale, increasing the specific duty rate in relation to the increased concentration.

"5. *The Government should unquestionably assess concentrated dyes at a higher specific rate in proportion to the concentration than is assessed on the standard trade concentration* as otherwise, it will be quite possible for the German manufacturers to very largely defeat the efforts of the United States Government in affording proper protection to American-made dyestuffs.

"6. This is a question which can very properly receive the attention of the Tariff Commission in establishing such a sliding scale wheih will be fair to all concerned."

Dyestuffs and Chemicals That Are Actually Obtainable

We suggest to our readers that they carefully preserve these lists, as in their complete form they will give a full and accurate record of the sources of supply of all dyestuffs and chemicals manufactured or handled by reputable American companies.

Owing to the number of companies who are now concentrating on Khaki, this list will include only the colors that are being manufactured at this time.

We have been critcised and congratulated upon this policy and in view of the fact that the majority are in favor of its continuance, you will see each week a list of colors made by, or sold by, manufacturers who are handling the best products obtainable.

We will be glad to list any manufacturers or selling agents who are known to be reliable.

Any erroneous listings can be corrected only with your assistance and we ask you to co-operate with us accordingly.

H. KOHNSTAMM & CO.
83-91 Park Place, N. Y.

This company claims to manufacture the following colors in pulp and dry form:

Soluble Prussian Blue
Insoluble Prussian Blue
Chinese Blue

STERLING COLOR CO., INC.
72 Front St., New York

This company is the sole selling agent for the Peerless Color Co., of Bound Brook, New Jersey.

Direct Cotton Colors
Primuline
Methylene Blue

MELROSE CHEMICAL COMPANY
Melrose, Massachusetts

This company claims to actually manufacture the following products:

Acetanilide (*Commercial*)
Paranitroacetanilide
Paranitraniline (*Spirit Soluble*)
Acetinduline Blue
Nitrosodimethylaniline
Gallo Chrome Navy Blue (*This Color for Wool*)
Prussian Blue (*For Paper*)

ALLIANCE CHEMICAL COMPANY
176 Federal St., Boston, Mass.

This company is offering the following colors which they claim are made in Massachusetts:

Fast Chrome Red
Fast Chrome Green
Fast Chrome Yellow

TURNER AND HEFLER CO.
Hyde Park, Mass.

This company is also offering the following made-in-Massachusetts colors.

Chrome Brown
Chrome Yellow

These colors are offered for Wool and worsted.

DUNKER & PERKINS
287 Atlantic Ave., Boston, Mass.

This company is the New England representative of the Federal Dyestuff and Chemical Company of Kingsport, Tennessee. We are informed by a member of this organization that the manufacture of dyestuffs will be continued when an agreement is reached with the new incorporators.

They offer: Khaki O

RELIANCE ANILINE & CHEMICAL CO.
100 Broadway, New York

We are informed by this company that they produce the following color:

Methylene Blue

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What Is Most Needed in American Dyestuffs?

Manufacturers in every branch of industry are guided most by the laws of supply and demand. As soon as the war conditions caused a shortage of dyestuffs the first call was for dyestuffs, and all know how some mills bought anything that was offered regardless of their need for it or its quality. Small factories sprang up and turned out "stuff that would dye" rather than "dyestuff." The remnants of German dyes that were left over here and there were bought up and speculated with by anyone who could tell a blue from a pink. Now the last of these old remnants are finding their ultimate consumers and the all-American dye is paramount. A few weeks ago we reviewed some of the work of the small American manufacturer and we made full allowance for the difficulties that were inevitable. There are other difficulties that cause worry and dissatisfaction among customers, and these are avoidable if they are handled properly.

Lack of uniformity of the product at the factory is due to two principal causes—the variation in raw material and the meddling with the process. Uniformity in raw material can be had in only one way, which is by buying a large stock at a time and not getting it from time to time from every broker who offers a concession of a slight decrease in price. It is difficult at times to obtain as much as is needed, for everyone fears a falling market on account of increased production and hesitates at taking a chance. The next precaution is to maintain a laboratory and make tests. To those outside of the industry this may sound like unnecessary advice, but it is incredible how many places are run without proper chemical control of the raw material.

Meddling with the process consists mostly in experimenting with full sized batches instead of on a small scale. The large companies in this country as in Europe, know the necessity of their research laboratories because all real progress that has ever been made can be traced to them. It is claimed that there is a scarcity of chemists in the United States, although there is no scarcity of graduates in chemistry. This is easily explained, for when a man is graduated at college he still needs much practical hard work in order to develop his ability to think and act right in an emergency. There has never been much opportunity for our young chemists to get acquainted with dyestuff manufacturing, and so the business is overrun with men who claim to have been the chief chemist of the Badische or Cassella factories and who have the process of all the colors ever made. As a fact, all large factories are much specialized and one man is not used to supervise several departments; moreover it is hardly possible that any chemist who had any position of responsibility and was entrusted with the latest processes would be over here hunting for a position. Nevertheless many of them succeeded in getting financial backing, and some are even operating today. Between the young inexperienced men and the professional swindlers masquerading as chemists, those who have furnished the capital would have fared badly if it had not been for the condition of the business that allowed them to make large

profits on "stuff that would dye." Now is the time to take account of stock and decide on a new policy for the future. If the greatest anxiety is for a large yield, realize for once that the best way to accomplish this is to have the reactions proceed under the most favorable conditions and eliminate all wastes, but never call a batch containing a high proportion of by-products and insoluble matter a good yield. The consumer has seen some lots of the same product free from the impurities, and he is going to require it in all cases even if it costs a little more. We ran for a while on Malachite Green Hydrochloride, but since a few lots of the Zinc double Oxalate have been made here and many of the solubility troubles corrected, it is going to be very hard to continue to do business with the Hydrochloride. Fuchsine by the old process is giving way to that made by the new Fuchsine process. More careful and efficient filtering is now necessary and throughout the works of the smaller manufacturer greater skill and care is demanded each day not only to maintain business against competition at present but in order to be able to remain a factor after the cessation of military hostilities and the commencement of commercial war.

We want to see all the factories now in the field continue in business, but we know that this lies in their own hands. There are going to be several large corporations fighting each other for a time, possibly the usual gentlemen's agreement, possibly a complete forgiveness of our present foes, and the small factory will have a very lively fight for existence. Now is the time to prepare. Other industries have found associations profitable and the few suspicions of petty jealousies that threatened at first soon disappeared when the members became better acquainted. There are many common interests that call for centralization, there is need for concerted action on the tariff and the only hope of eliminating disastrous internal competition is by adopting the same tactics as the German manufacturers used before the war and which they have reinforced since then. Such an association would make possible the control of raw material and provide for research where the individual members might not consider it profitable.

This association proposal has been announced but has not yet assumed definite form. It has many who are opposed to it, but we feel that it is to the interest of the American manufacturer from every point of view, and we propose to consider every argument against it as strictly pro-German propaganda.

A Statement Regarding the Conference of Dyestuff Manufacturers

We have received so many inquiries from dyestuff manufacturers regarding the conference to be held in New York City during the month of January, that we have personally interviewed Mr. H. Gardner McKerrow and his statement follows:

"The severance of my connections with the Marden, Orth & Hastings Co. will not affect the arrangements for the forthcoming conference to be held in New York City in January next for considering ways and means for standardizing American colors.

"Arrangements for this conference are proceeding rapidly, and Mr. McKerrow will make a statement to those firms who have expressed their willingness to co-operate in this movement at an early date.

"Something over two hundred letters have been received from dyestuffs manufacturers and responsible dealers, expressing their intention to take part in this conference, and it is hoped that the result of it will be an interchange of ideas which will permit of the establishment of a well conceived permanent plan.

"Certain departments of the government have expressed their approval of this movement and will have representatives at the conference, among them being one from the Tariff Commission.

"It is hoped that this conference may be held in the lecture theatre of the Chemists' Club, but final arrangements for this have not yet been completed, and failing the availability of this location, some other central point will be chosen.

(Signed) "H. Gardner McKerrow."

Conservation of Potash

Conservation of potash along with food and fuel, is urged in a Department of Agriculture report to-day, which shows that betwen 71,000 and 75,000 tons of available potash, about one-third of the quantity normally consumed in the United States, exists in the dust passing through or retained in the flues of the cement plants of the country.

The report says that by increasing the percentage of potash volatilized, by the addition of substances which will not affect the quality of the cement, the recoverable potash in flue dust can be increased to more than 100,000 tons annually, or nearly one-half of the country's normal consumption.

The Situation in Dyestuffs

From information gained from several manufacturers of dyes we find that there is a somewhat firmer undertone in dyestuffs. There has been no particular color upon which activity has concentrated, as was the case a short time ago.

Taken as a whole, the volume of business seems to be encouraging and good prices have prevailed. There are many pleasing announcements from manufacturers who have this week placed new colors on the market.

The situation in the general market for coal-tar derivatives, according to one authority, seems to center on toluol and phenol.

There is much speculation as to the extent of the government's demand on the products and the situation, in regard to supply, seems to be rather tense.

Inquiry Department

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department, for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Question—What is Rhodamine Substitute and who makes it?

Answer—This is not a dyestuff in good standing but one of the makeshifts of the wily brokers. Several products of this name have come to our attention, one being simply reduced Safranine. Another was Phloxine and another had no resemblance to Rhodamine except in the shade of the powder. There is a dyestuff which would be more than worthy of the name if it were not really better in some respects; namely, Xylene Red, made by Sandoz of Basle. This is an acid dye about half the strength of Rhodamine B (single), which dyes very level and is quite fast to light and matches Rhodamine B in shade. Some lots of it have been offered lately, but we cannot say whether it is a pre-war remnant or is still being made in Switzerland.

Question—What are the best dyes for Jute burlap that are obtainable at the present time?

Answer—The most common colors for jute are the basic dyes, of which a fairly large line is obtainable at present. They are dyed from a hot but not boiling bath containing alum. The greater number of direct cotton colors are also used, but the shades are not so brilliant. The best colors however are such acid dyes as will dye vegetable fibres from an alum bath. Fast red gives a better red on jute than any other class of dyestuff. Azo Yellow, Wool Orange, Metanil Yellow are excellent. We cannot now obtain Soluble Blue to use alone and with the yellow for greens, but it is likely that some will soon be on the market.

Question—What is the fast bright red that is being used on the cotton flags?

Answer—Practically all of the cotton flags one sees at present are not dyed but printed. Nearly all of the red color is Para Red. This is not sold as a finished dyestuff but in the form of intermediates. The cloth is first printed with a preparation of Beta Naphthol and Caustic Soda and dried in the dark, then run through a bath containing Paranitraniline diazotized by the action of Nitrite of Soda and acid, when the color develops instantly. There is plenty of these products on the market but dyers seldom use them, the bulk going to printers of calico and color lace makers.

Question—Which class of dyestuff is most suitable for staining white cotton to resemble Egyptian cotton or to make lace an ecru shade?

Answer—The most practical way of arriving at this result without any danger of unevenness, which is the greatest trouble with most dyes, is to use instead of coal-tar products an extract made from Chicory or Coffee essence. This has been used by the French lace makers for a long time and the results are both fast to washing and free from streaks.

Question—What is the black sediment that settles out of a solution of concentrated Sodium Sulphide, and will it have any effect on a dyeing made in a bath containing it?

Answer—The sediment is most finely divided Carbon and is devoid of any chemical action whatever. Even with the lighter sulphur colors it does no harm, as it does not adhere to the fibre but washes out quite readily.

To Manufacture Artificial Silk

Philadelphia, Pa.—The Art Silk Co. of America, recently noted as incorporated with a capital of $2,500,000, it is stated has perfected a process for the manufacture of artificial silk from cotton linters. The plant for this company will be located in Philadelphia, and negotiations are about completed for the necessary building which will be announced in the near future. The process has been developed under the direction of the two Swiss chemists, who have been operating an experimental plant in the building occupied by Van Straaten & Harvey, 1815 Bristol St., Wayne Junction, Philadelphia, and for some time past have been producing artificial silk on a commercial scale. The opening of the new plant will, therefore, be an expansion, and the initial output, it is stated, will be 1,000 pounds weekly with further expansion as rapidly as the equipment and organization can be developed. A number of Philadelphia manufacturers are interested in the project.

German Dye Trade Needs Capital

The capital of the foremost aniline dyes companies of Germany have been largely increased. The amount of this capital represents a sum which can only be compared with the capital of the great financial institutions and the mining group. This development in the German dye industry was believed to indicate the determination of the German interests to maintain after the war a monopoly of the dye trade.

Chemical Development in Italy

The development which has taken place in the chemical industry in Italy during the war has practically all been the result of urgent necessity. Italy was thrown on her own resources and it was a case of quick development or perish; she appears to have succeeded very well. It is reported that 170 million lire ($35,000,000) is invested in the chemical industry in Italy to-day and that one-third is given over to the manufacture of pharmaceuticals, one-fourth to electrochemicals and the balance to fertilizing chemicals.

Standardization of Dyestuffs

An outline of the proposed National Dyestuff Association which appeared in a recent issue of *Drug and Chemical Markets*:

The initial steps having been taken toward establishing a National Dyestuffs Association with the standardization of American dyes as one of its objects, it will be useful to emphasize what such an important undertaking involves.

Standards define measure, quantity and quality. They seek to determine characteristics which may be measured as accurately as possible, and by comparing the properties of an unknown with those of a substance known to be satisfactory from service performed, a rational, fair basis for valuation is obtained.

The importance of standards is well known, and that we may have reliable and satisfactory ones, organizations are at work in many fields. The Bureau of Standards at Washington, chiefly concerns itself with the creation of new, reliable standards, checking measurements and testing materials, besides devising new methods for determining the properties of materials. The American Society for Testing Materials is carrying on important work principally in the fields of iron and steel, cement and other structural materials, paints, protection coatings, etc. This work is done through a committee of the Society, composed of manufacturers, consumers and disinterested consulting chemists.

First standards are always measures of quantity. With refinements in manufacture, practice of adulteration or specialization in uses, quality measurements increase in importance. Thus modern tool steels must answer specifications to within 1/10 of a per cent. in content of certain elements, and even structural shapes, rails and bars bought in thousand ton lots are well standardized for their special uses.

Dyes long since advanced to the stage when quality standards are essential, and yet there has been a remarkable absence of them. We are reminded of a somewhat similar condition early in the history of lubrication when "special oils" were made up for each inquiry and of course at special prices. Even now with standardized lubrication many users know so much about their requirements that they get along without specifications, and pay and pay and pay.

The first step in the proposed work on dyes should be the standardization of the nomenclature. It is recognized that this is no easy task. The true chemical names of such organic compounds are not well suited to a compact catalogue, nor are they easy to remember or pronounce. On the other hand, few other articles of commerce are so universally given names that convey so little information as to their real nature. Even furs have names that stand for a quality, though no such animal as the name indicates may exist. The mystery with which the dye industry has been surrounded doubtless is accountable for the confusion of names. Each manufacturer has invented his own names, and there is little to indicate the corresponding dye in the catalogue of another. Let us then have standard nomenclature even if some committee has to analyze the dye and publish its real chemical name together with a standardized trade designation.

Definitions are generally troublesome, so that early in the work terms should be properly defined so that future specifications will not be ambiguous. This is unusually important where expressions peculiar to the dye house are concerned, trade idioms and even dyers' slang.

Since standards depend upon measured properties, those to be put into specifications should be discussed and those capable of the most accurate determination chosen at the start. These trial specifications may be amplified later as our knowledge grows, until a complete list of the characteristics can be included. Tests are known for determining the fastness or resistance to light, the action of various soaps, "cross dyeing," or acid, the effect of alkali and of bleaching agents. The influence of perspiration, of weather and of heat may be determined as well as of urine and water spotting. To know the resistance to rubbing or "crocking" is important, and the effect of the various sizing processes should be ascertained. Mud spotting is likewise important, bearing in mind the fact that there are many kinds of mud, and that city and country muds are usually decidedly different. Whether the dyestuff has "level dyeing" properties is another feature, and its freedom from adulteration is very important. And in all these tests one must have clearly in mind the uses to which the dye is to be put.

Now the whole plan falls through and more harm than good results unless we can agree on *the* way to conduct these tests. Lawsuits involving fortunes have resulted in other chemical fields because of a disagreement in method. For example, some years ago there was $30,000 involved in a suit over the content of phosphorous in an iron ore shipment. The difference in the amount found by the laboratory of the consignor and of the consignee was wholly a matter of method. Methods must first of all be capable of reasonable accuracy. Where possible, they should allow rapid determinations, and should be as simple as they can be made. Rapid methods must be compared with well known tedious ones, and where nature's work is to be imitated, the results must be standardized. For instance, ultra-violet light produces the fading action caused by the sun and affords a quick method for determining fastness to light, but we do not know yet how many minutes under ultra-violet light is equal to the average month of sunlight in each of the four seasons.

And while we are standardizing methods for standardizing dyes, why not standardize the use of dyes? Perhaps no one thing has helped the German dye propaganda more than the tendency of dyers to get out the required shade with any dye at hand regardless of whether it was made for the purpose or not. Of course, American dyes are poor under such circumstances. Ever try blacking shoes with German white polish?

The National Dyestuffs Association is about to undertake important work. It involves a lot of very careful research and complete co-operation among its members, each man being willing to do that for which he is best fitted. The project has need for every diversified talent, and we have indicated that sufficient questions are awaiting solution to keep a large membership engaged for considerable time. It is surely worth doing.

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Does America Want American Dyes?

If twenty-five people were asked this question no doubt twenty-five voices would immediately exclaim, "Certainly we want American-Made dyes for we must never again be dependent upon Germany."

This answer would indeed sound most encouraging to the manufacturer and he would invest many more thousands of dollars in equipping a plant just because, "Never again must we be dependent upon Germany."

We wonder if each person questioned would be willing to help in making the industry a success.

The people directly responsible for the industries establishment are the manufacturers, the consumers of their product and the Government.

When there is a spirit of co-operation and understanding between manufac turer, consumer and Government then can we educate the purchaser of fabrics.

The Manufacturer

We all know the enormous amount of capital necessary to establish a plant for the manufacture of dyestuffs.

We know that there are many companies who have spent and are spending, huge sums to establish the industry and to them credit is due.

The quality of the colors now being placed on the market by certain companies, is all that can be desired. Other colors are not up to the standard, that is necessary if the industry is to expand.

The formation of the society recently proposed, and the establishment of a chemical court of appraisal where standards can be set and of necessity be maintained, would do much toward bettering conditions in the industry.

The manufacturers realize that the future means a hard battle for commercial supremacy and immediate preparation is necessary for protection.

When a meeting is called for the discussion of conditions in the industry there should be a ready response from each manufacturer, for surely no harm can come and certainly some good will result.

Co-operation, friendly feeling, maintenance of quality and consumer protection are of vital importance, so let us not hesitate until we are swept away by a flood of commercial competition.

The Consumers

The consumers of dyestuffs and chemicals want the industry to succeed.

It is unnecessary to outline the reasons for this, but what is necessary is to help the consumer to help himself.

This can be done only by the formation of a co-operative body which could be known as the National Dyestuff Association. Each member of this N. D. A. would be compelled to maintain a certain standard for his products and the consumer would be protected when he purchased from a member of the N. D. A.

You as a consumer should do all in your power to stimulate enthusiasm among manufacturers for certainly it is of vital importance to you to have co-operation and not antagonism as now exists in some instances.

The Purchaser of Fabrics

Would you be willing to look for an N. D. A. label on articles you purchase if you were thoroughly convinced that American-Made dyes were good?

If the propaganda which you have listened to month after month were proven to be false we feel that you would look for the N. D. A. label if for nothing else than you own protection.

Let us hope that co-operation of manufacturers may mean the establishment of a standard of quality which may bring credit to America.

The Government

Many manufacturers claim that the Government has been slow in giving them protection, but perhaps the fault lies more with them than with the Government.

When is is evident to the layman that a spirit of co-operation exists in the industry, the Government will surely respond.

Unity of manufacturers in the maintenance of quality should be paramount, and when this is attained the Government will not fail us.

If you are interested and want to give us any sugestions we might bring them to the attention of the manufacturers at the first meeting.

LINEN DYEING

(*Continued from last week*)

Dyers should pay more attention to these preventative treatments, as owing to the enormous cost of labor, steam and coloring and finishing materials, unless the maximum output is realized firms can hardly exist.

After the washing the goods are entered into the dyebath, using 4 to 5 per cent logwood, 2 per cent quercitron bark to sufficient water. The goods are entered at blood heat, and, after two passages, steam is turned on and the goods are worked till the bath is boiling and then given about two passages after the steam is turned off. In the cooling bath, about 60 to 80 minutes is usually required for a 500 yards' batch of goods. The writer understands that some firms are now replacing one-fifth of the logwood with ferrous sulphate (copperas) owing to the heavy price of the wood.

The goods are now allowed to lie a few hours before proceeding with the next operation. Except in cases where they are to be given a dry, non-beetled finish, they must have a few passages in a 4 per cent chrome bath to fix the color. If goods are dried without chroming, the color comes off in dust, and destroys all it comes in contact. The dyeing then takes an unpleasant reddish hue. Where the goods are to be given a high-beetled finish, the chroming is not necessary, as as the goods are water squeezed, one-fourth dried, starched according to finish required, and sent to the baths in the wet state. The starch holds the color, and when the goods become dry with constant beetling, the color will not dust off.

A few examples of the methods used for dyeing various shades before aniline colors were much known will be useful, as under present conditions many firms have reverted to these old methods. The goods must be creamed before commencing the dyeing operations. A magenta shade is dyed by working the goods for 30 minutes in a 15 per cent bath of sumach at 140 deg. F., next for 30 minutes in a 10 per cent bath of stannate of soda at 140 to 160 deg. F., then adding ½ per cent magenta crystals to the dye-bath, working for 15 minutes at 120 deg. F., washing well in water at about 60 deg. F., and drying.

Red can be obtained by scalding the goods in a 10 per cent bath of sumach, then working for 30 minutes in a 5 per cent bath of red spirits at 160 deg. F., then for 30 minutes in 10 per cent limawood and 2 per cent fustic at 160 deg. F., washing well and drying. A nankeen or buff shade is obtained by working the goods in a 5 per cent solution of copperas at 160 deg. F., for 40 minutes, then enter goods into a cold solution of lime water of 1½ to 2 deg. Tw., working for 30 minutes and exposing to the air. To get an even and level shade, the easiest way is to have a long rack, say, 20 ft., with a winch at each end; 3 or 4 ends are sufficient. This shade is very fast, and a weak sulphuric acid sour improves it greatly.

These recipes can also be applied to cotton goods, but in this case to get a uniform shade the goods must be given a few ends in a weak caustic soda solution in order to remove the grease. The creaming of the linen yarns renders this step unnecessary, and also removes the gummy matter.

There are scores of these old methods for various shades which can be revived; but present-day dyers would take it very ill to turn back again to the methods of fifty or sixty years ago, although some firms are really working these old methods, especially on poor qualities of goods or on goods which are to have only a slightly dyed effect.

The following table, which are some of the old tests employed to discover the dyes used in some particular shade, may prove interesting reading:

Blues.—A dyeing is treated in a solution of weak hydrochloric acid.

1. Color changes to red or orange. (Logwood.)
2. Color does not change.

Another part of the dyeing is treated with calcium chloride solution.

1. Color remains unchanged. (Prussian Blue.)
2. Color changes.

Another part is treated with caustic soda.

1. The substance is decolored. (Aniline blue.
2. It remains unchanged. (Indigo.)

Reds.—A part is treated with boiling soap solution.

1. The color is discharged. (Saffron.)
2. The color is slightly discharged. (Aniline Red.)
3. The color changes to yellow. (Cochineal.)

A part is treated with conc. sulphuric acid.

1. A cherry red is produced. (Brazilwood.)
2. An orange is produced. (Cochineal.)
3. The color remains unchanged. (Madder.)

Yellows.—If annotta is the coloring matter, the color changes to greenish blue in boiling conc. sulphuric acid.

Treat another part by boiling in stannous chloride.

1. The color remains unchanged. (Quercitron Bark.)
2. The color changes to orange. (Persian Berries.)

If a blood red is produced, on treating with potassium cyanide it indicates picric acid.

Violets.—A dyeing is boiled in calcium chloride solution.

1. It is unchanged. (Alcanna.)
2. It is decolorised. (Cochineal.)
3. It becomes a buff color. (Madder.)

By boiling another portion in citric acid, the color is brightened. (Aniline Violet.)

Greens.—Boil a portion in dilute hydrochloric acid.

1. The dyeing is colored blue, the liquor yellow. (Aniline Blue and Yellow.)
2. The liquid is blue. (Aniline Green from iodide.)

3. The substance is decolored. (Aniline Green.)

A logwood dye or the presence of logwood is detected by putting the dyed fibre into weak sulphuric acid, which renders the color brownish. If the acid used is neutralised with ammonia, the liquor assumes a blue logwood color, and if the discharged fibre is put into ammonia it will give a slate color.

These few tests, although of little or no commercial value nowadays, will, no doubt, be new reading to many of the present-day dyers, and they tend to show how our predecessors faced these problems when chemistry was in its infancy, and many of our now common indicators then an unknown substance.

No branch of the textile industry has been harder struck than canvas dyeing, as when the Belguim yarns were available these were for the most part water-retted fibres, and there was no trouble in getting goods a clear soured shade. All that was required was a weak sulphuric or hydrochloric acid bath. Since the war practically all the flax is Russian, except the Irish-grown, which does not nearly equal requirements. The Russian flax, being dew-retted, is not suitable for clear shades, with the result that, although every dyer has his own methods of clearing, the only satisfactory way is to cream the yarns, using the same means as for bleaching, and then dyeing the goods to the shade required. This results in a smaller output, more work being necessary at increased cost. Many shades are dyed in the starch in the padding mangle, for instance, light drabs with iron liquor and quercitron bark, the proportions being varied according to tone required.

Browns are dyed with cutch and chrome, and although these dyeing agents are in themselves very far from fast, when they are applied with the starch the quality of fastness is wonderfully strengthened, and in appearance the goods look quite as good as those dyed with aniline colors.

Imports of sumac for August aggregate 773,640 pounds, valued at $19,782, as against 635,395 pounds, valued at $17,750, during August, 1916.

Germany in Need of Potash

A report from abroad says that Germany's stocks of potash are exhausted, and manufacturers are unable to meet the demands of agriculturists. Owing to the shortage of labor and coal and the difficulties of transportation, production has almost ceased. Financial circles are apprehensive that Germany will have no potash to export when the war ends, which will prove a serious matter, as potash is the most important and valuable of all the so-called "compensation" products which the Germans have to offer, and the lack of it will greatly retard the betterment of the rate of exchange.

The Chemical Market

We are informed by an authority in the trade that the chemical market, taken as a whole, seems to be under the influence of or in the control of second hands.

The manufacturers seem to be practically out of the market. There is marked hesitancy in signing up on contracts for future delivery. The market for the week has maintained a steady level with the exception of a few products which showed a tendency to rise.

Perhaps this is due to the scarcity of some supplies and it is hoped that this difficulty will be overcome and that business will again be in the control of the manufacturer.

Caustic Soda

Much of the interest now shown in the chemical line seems to center on caustic soda.

There has been practically no activity in this commodity during the entire week.

The prices are slightly in advance of those of last week and this can, no doubt, be attributed to a shortage of supply. We are told that the same condition exists in soda ash and all of the other soda products.

There is marked activity among smaller dealers in the soda line but we fear that the materials they offer are somewhat deteriorated as the prices are rather low.

Notes of the Trade

The Miner-Edgar Company of Newark, chemicals, minerals, etc., has been incorporated under the laws of New Jersey with a capital stock of $100,000. Incorporators: Henry M. Miner, James C. Thornton and N. M. Goodlet, Jr., all of Newark.

A coke plant that will cost $10,000,000 and will give employment of 1,200 men will be erected at East St. Louis by the American Coke & Chemical Company of Chicago. The St. Louis Coke & Chemical Company, a subsidiary of the American Coke & Chemical Company, will build the plant on a location not yet selected. W. G. McGuire, secretary of the St. Louis company, says his company will undertake an innovation in the way of coking Illinois coal.

The Occidental Chemical Company was incorporated in Oakland, California, early this month for $35,000. This concern was formerly the California Chemical Company of Santa Barbara county, which produces potash from kelp. The directors of the corporation are: F. A. Williamson, George H. Morse, C. C. Watts, H. H. Collor and H. G. Tardy.

Word comes from Salem, Oregon, to the effect that a railroad will be constructed from Lakeview to the Alkali Lake section to facilitate the development of more than 1,000,000 tons of soda salts. Engineers employed by the Spreckles interests of California are confident that the project will be a success. The lake is situated about seventy miles north of Lakeview and is in the same region as Summer and Albert Lakes. The State has been attempting to develop the soda and potash deposits of this section for several years, but the cost of hauling material was too great to allow a selling profit in the open market. The establishment of a railroad, however, will greatly reduce the initial cost.

During the first quarter of 1917 Italy imported 257 tons of zinc oxide, valued at 230,000 lire. Of this amount 173 tons came from the United Kingdom. The Italian production of zinc oxide in 1915 amounted to 2,565 tons.

Exports of aniline dyes from Switzerland show a marked increase in value in 1916 as compared with those for the years preceding. The value of such exports for the past six years offer the following comparisons:

1916	52,000,000 francs
1915	29,000,000 "
1914	27,000,000 "
1913	25,000,000 "
1912	26,000,000 "
1911	25,000,000 "

Before the war, Germany sold in the Italian market about $125,000,000 worth of manufactured products a year and she has no intention of losing the market. Already her agents are booking orders secretly for delivery at the conclusion of peace and if the infant industries of Italy are not protected from the first great rush of German goods into the country, they will be annihilated. The Italian Government has taken the warning and is now working out a tariff plan.

John W. Herbert, one of the receivers for the Federal Dyestuff and Chemical Corporation, says the stockholders will vote in a few days on the offer of Davis & Durkin, Canada, to operate the plants of the company. He said that if the offer was not accepted it would mean that the mortgage underlying the $2,000,000 of notes would have to be foreclosed and that it is to the interest of all security holders that the deal go through.

The note holders' committee of which A. W. Krech, president of the Equitable Trust Co., is chairman has sent an expert to the plant of the Federal Company to investigate its value, capacity and the prospect of its continuing on a profitable basis. Concerning the offer to take over the operation of the plant representatives of the committee said recently that the committee could not officially act nor give formal expression of opinion until the plants had been entirely inspected.

Officials of the Government and the Brooklyn Union Gas Co., have reached an agreement for the immediate installation by the Government of apparatus at the company's plants for the reduction of toluol. It will be several months before the new plants will be operation and the company will co-operate with the Government in their installation. The toluol plants will be operated by the Brooklyn Union Gas Co., and the terms as regards price of the product, will be determined later.

The agreement is the result of the Government's need for toluol, used in the manufacture of the high explosive T. N. T., and its desire to have gas companies make toluol. This fact was disclosed at the recent hearing before the Public Service Commission on the change in gas standard from 22 candle power to a British thermal unit standard. Under the latter standard the companies can produce toluol as a by-product.

The Markleed Chemical Corp., Manhattan, has been incorporated with 3,000 shares preferred stock $100 each, 4,000 shares common no par value, active capital $220,000. Incorporators: L. H. Marks, H. M. Wise, H. C. Aron, 55 West 10th street.

It is reported that a company has been formed to finance a Swedish dyestuff manufacturing plant which hopes to compete with Germany at home and abroad.

Two years have been spent in experimenting and the movement is supported by many scientific and technical experts.

Well Known Color Man Now Associated With E. F. Drew & Co.

H. Gardner McKerrow, for the last two years associated with the Marden, Orth & Hastings Corporation in the establishment and management of the Textile Department, has severed his connection with that concern and is now associated in a similar capacity with E. F. Drew & Co., Inc., 50 Broad Street, New York City.

Mr. McKerrow will have the management of the Textile Department which intends to go into the handling of the dyestuffs as well as mill chemicals and industrial oils, with which the name of Messrs. E. F. Drew & Co., Inc. is already associated and well known.

Special attention will be given to American dyestuffs and it is the intention of the department only to handle those colors which can be offered as being of type strength and quality.

Mr. McKerrow has been identified with the development of the American dyestuff industry through many channels, and is now the instigator of a movement which it is expected will result in the convention to be held in New York City in January next, at which it is hoped all the manufacturers of American dyestuffs will be represented, for the consideration of a proper means of standardizing American colors.

Mr. McKerrow will have associated with him, Mr. T. F. O'Keefe, formerly his assistant at Marden, Orth & Hastings Corporation, and who is also well known to the dealers and manufacturers of dyestuffs in this country.

Dyes From Pulp Waste

CHEMISTS WORKING TO USE SULPHITE PULP WASTE AS DYE SOURCE—CONVERSATION COST A FACTOR—U. S. AIDING

BY J. ROBINSON SILVER, JR.

With the present day demand for the development of all possible cources of dyestuff materials, the question of the utilization of sulphite pulp waste again comes to the front.

This waste product, formed in the manufacture of paper pulp from wood, has for some time presented an interesting problem to the research chemist. To date, the problem has been investigated more from the viewpoint of preventing the pollution of streams than of utilizing it as a commercial product. Investigations relative to such pollutions have brought forth a number of suggestions, with the result that to-day pulp waste is being used on a small scale as a substitute for glue, as a binder, as a mordant for wool, as a semi-waterproof size, and as an adhesive in core making. But the problem of utilizing this waste product for its organic compounds has yet to be worked out on a commercial basis.

When one considers the fact that three billion gallons of this liquid are discharged into the streams of this country every year (Forest Circular No. 120, U. S. Department of Agriculture) the magnitude of the loss due to the non-use of the pulp waste can be imagined. Germany, as early as 1894, offered a prize for the best method of overcoming the pollution of her streams by this refuse, with the result that much research work was done and many patents issued, but the prize is still unawarded, as most discoveries to date have failed on a large scale. Several mills in Germany, where restrictions regarding the pollution of streams are more strict than here, have had to close down due to their inability to convert this matter to a non-pollution substance or to make it of use in another industry. If this country should adopt similar restrictions how many paper pulp mills would be able to remain in operation?

Among the possible uses to which this pulp waste could be put is that of utilizing it as a source for dyestuffs. This possibility has been investigated to a certain extent by individual chemists, by several large pulp manufacturers, and by the various departments of the United States Government, but so far dye manufacturers have taken but little interest in the matter.

The value of the pulp waste to the dye manufacturer lies entirely in the utilization of its organic matter. Just what the composition of this matter may be is a question upon which many eminent chemists fail to agree. But we may accept with confidence the theory that wood is a ligus-cellulose, and is freed of the cellulose by the sulphite process, leaving a complex organic substance in the waste. This substance has been given the name "lignose," "lignin," and "lignone." It is upon the theory as to how this lignone may be combined with the inorganic groups present that opinions differ. On the basis of several of the theories advanced there are two possible methods of research immediately opened to the dye chemist, viz.:

1st. Fusion with sulphur and sodium sulphide to form a so-called sulphur dye.

2nd. "Coupling up" with an amine and nitrating the mixture.

Working on the first theory, for the

production of a sulphur dye or dyes from the pulp waste, some work has been done, with the result that several dyes of black and brown shades have been obtained. These dyes when tested have all proved to be fast.

Working from the second point of forming a nitro compound, a detailed research into the action with various amines has shown that colors ranging from light yellow to dark brown can be secured.

E. B. Phelps (in Water Supply Paper, No. 226, U. S. Department of the Interior) summarizes a number of experiments tried out during his investigations, but states that these products show little improvement over direct nitration of lignone without the addition of an amine. A subsequent investigation of a more complete list of amines has proved that several dyestuffs can be made, which, when after-treated with chrome or bluestone, prove to be very fast.

The question of the commercial success of such a proposition as the manufacturer of dyes from sulphite pulp waste, however, must be finally determined by the cost per pound of the finished product. In mills where the amount of water used is not restricted, the dilution of the waste is so great that the cost of evaporation alone would often exceed the cost of dyes now on the market. But at the same time if the waste steam of a mill were used, the evaporation could be carried out to a large extent with very little extra expense. In mills where the dilution is not so great, there is a very good opportunity to make use of present information, and to adopt it to local mill conditions, making either a sulphur dye or a direct dye as a by-product.

At the request of one of the largest pulp manufacturers, an investigation is now being carried on relative to the production of dyes from what is perhaps the largest waste product in the country; but the results of such special investigation have not as yet been published.—*The Color Journal.*

DYESTUFFS AND CHEMICALS THAT ARE ACTUALLY OBTAINABLE

The following is reproduced as a help to the consumer in purchasing reliable products and is listed free by the REPORTER.

SIZING SPECIALTIES CO.

Jersey City, New Jersey

We are in receipt of a letter from the president of this company in which he says, "For the past two years we have manufactured and can offer the following oil soluble colors."

Red
Orange
Yellow
Brown
Blue
Mahoganies

FRANK HEMINGWAY, INC.

115 Broadway, New York

This company sends us the following regarding their products of which they are the sole selling agents:

Butterworth Judson Corp.
Victoria Blue B
Victoria Blue Base
Crystal Violet
Crystal Violet Base

This company also represents the Ballardvale Chemical Co., who are manufacturers of Safranine.

AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

Circulating Wherever Dyestuffs are Used

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Commercial Preparedness

It is only a few months since we heard on every hand the cry of "Prepare." We still remember the arguments pro and con, a great deal of the con, by the way. How it was foolish for us to go into something that was really not our affair and how if we were forced into it we could with our wonderful American ability rise to any occasion over night, as it were, and match our pluck against experience on the part of our adversary and carry off the honors. Then when it was decided we should prepare and see the thing through you remember how the petty arguments filled the papers regarding wooden ships, equipment, etc. And now you know how the special agents of the enemy are attempting to balk all progress, not stopping at arson, murder or any other Teutonically justifiable means to hamper us.

After all, a military war is but a way of attaining a commercial victory and the ultimate end of all the carnage can be expressed in terms of marks, francs, pounds and dollars. We know that the treaty of peace will put a stop to the burning of powder, and send the gas tanks back to the chemical works along the Rhine, but no treaty will restrain the same foe from attempting to wrest from us the industries we have been engaged in building during the last three years.

The one industry which will be the mark for their heaviest guns and craftiest intrigue is our DYESTUFF INDUSTRY. The reasons are simple—it was one of their most cherished and incidentally both profitable and a factor in the military scheme, while on the other hand we are notably weak, not in pluck and endeavor, but in organization and in the very foundations of the industry. Our Government regards the industry merely as one of many, available for taxation and to furnish statistics, but not of sufficient importance to warrant it the consideration it deserves. Our colleges prefer to remain scholastic rather than become practical and so whatever progress is possible must depend on private enterprise and individual effort.

When we decided to prepare in a military way we did not go back to the old flintlock musket and smooth bore cannon of the Revolutionary period but utilized the best achievements of both ally and foe. The enemy also utilized our best inventions and turned them against us without any apparent scruples. This principle must be applied to the manufacture of dyestuffs if we are to remain a factor after the war. The work must begin back in the schools and the chemists trained for such work. The many years spent in research, along lines where not ten men in the whole country can take interest in the result, might well be done along lines having at least a remote connection with something practical. The contributing industries should have a familiarity with the needs of the chemical manufacturers and the dyestuff manufacturer should be ready at all times to acquire the best and most efficient process and machinery without waiting until his competitor has forced him to do so. After all this we must watch the factory and selling organization just as we now watch a warehouse containing grain or munitions for the Allies.

We must at the present time realize that we can only hope to remain in the business by attaining at least as much in the way of perfection as had been attained by the Germans before the war, but if this is not possible we must be protected adequately by our Government until we have had a chance to do so. If our line of colors is weak in spots and the gaps have to be filled by imported dyes it will be very easy to so adjust matters so that we can be undersold on what we are making and a sufficient profit made on what we do not make to soon close the American factories.

You may say, "They did not do this before the war so why would they be able to do it afterward." As a fact they did begin a campaign of this very sort a year or two before the war began, they had closed most of the small factories through business of this kind, they had their agents at Washington fighting the tariff schedules and at the same time were making enormous profits on such dyes as were not made outside the factories of their association.

More could be said along this line but it would not make the point more emphatic.

Whatever line of business you may have been in before you began to make or sell dyes will be no guide whatever for what you may expect in the line of competition. It is early to mention selling problems now while this is a seller's market, but when we come nearer to the need there may be a few more paragraphs on this subject.

Plans for National Association Progressing Favorably

THE week of January 21st has been practically decided upon and the evident interest points to the success of the movement.

The following are some of the letters received and at this writing we are informed that each day brings many suggestions from manufacturers.

Those who are interested in the movement are:

E. M. & F. Waldo, 11 Broadway, New York City.

The Chatfield Manufacturing Co., Cincinnati, Ohio.

William S. Culbertson, United States Tariff Commission, Washington, D. C.

Wilckes-Martin-Wilckes Co., 135 William St., New York City.

American Color Manufacturing Co., Passaic, N. J.

Cambria Steel Co., Philadelphia.

Oakes Manufacturing Co., Long Island City, N. Y.

E. Kley, 40 Pine St., New York.

E. C. Klipstein & Sons Co., 644 Greenwich St., New York.

Iridescent Dyestuff Color Co., 247-251 Bush St., Brooklyn.

Geo. H. Morrill Co., Norwood, Mass.

The Abbott Laboratories, Chicago, Ill.

Sethness Company, Chicago, Ill.

B. Brown & Bro., Inc., 237 Water St., New York.

The Georgia Ochre Company, 165 Broadway, New York.

H. A. Hirsh, 68 William St., New York.

The Heller & Merz Co., Newark, N. J.

Samuel Nevins Co., Inc., 109 S. Second St., Philadelphia.

A. De Ronde & Co., 228 Front St., New York City.

The Seydel Manufacturing Co., Jersey City, N. J.

J. Early Wood, Inc., 21 Platt St., New York.

The Bayer Company, Inc., 117 Hudson St., New York.

Canadian Anilines & Chemicals, Limited, Toronto, Can.

C. J. Osborn Co., 132 Nassau St., New York.

Delta Chemical Company, Inc., 11 Warren St., New York.

Fisher Chemical Company, 170 Summer St., Boston.

Boston Dyewood and Color Co., 136 Federal St., Boston.

J. F. Linburg, 101 Beekman St., New York.

Manhattan Trading Corporation, 2 Rector St., New York.

Wm. Zinsser & Co., Inc., 195 William St., New York.

The Ph. Van Ommeren Corp., 42 Broadway, New York.

Bosson & Lane, Atlantic, Mass.

Frank Hartley, 146 Summer St., Boston.

Thos. J. MacEvoy, 1126 W. Ontario St., Philadelphia.

Sloan & Russell, 132 Nassau St., New York.

Hadjopoulos & Sperco, Inc., 29 Broadway, New York.

Kuttroff, Pickhardt & Co., Inc., 128 Duane St., New York.

Commonwealth Color & Chemical Co., 608 Chestnut St., Philadelphia.

Century Color Corporation, 182 Front St., New York.

C. C. Parsell & Co., Chicago, Ill.

Fine Colors Company, Paterson, N. J.

Bothamley & Co., 309 Broadway, New York.

United States Dye Extracts Co., Inc., 801 Vernon Ave., Long Island City, N. Y.

J. G. Rutherford & Co., 505 Broome St., New York.

Imex Corporation, 25 Beaver St., New York.

The Barnes Chemical Works, Paterson, N. J.

Eavenson & Levering Co., Camden, N. J.

Sherman & Mason, 211 N. Front St., Philadelphia.

India Alkali Works, 28-37 India Wharf, Boston.

Eastern Drug Company, 14 Fulton St., Brooklyn.

A. & B. Export & Import Corporation, 78 Wall St., New York.

Imperial Car Cleaner Company, 115 Chestnut St., Newark, N. J.

John J. White, Inc., 149 Broadway, New York.

Dicks, David & Broadfoot, Inc., 302 Broadway, New York.

F. Ellis Morris Co., Drexel Building, Philadelphia.

The Cronkhite Co., 185 Devonshire St., Boston.

Manhattan Color and Chemical Co., 25 Beaver St., New York.

Bowring & Company, 17 Battery Place, New York.

Tower Chemical Co., Inc., 258 Broadway, New York.

Healey-Seaver Company, 90 Freeport St., Boston.

The L. B. Fortner Company, 36 Strawberry St., Philadelphia.

Chas. A. Jorgensen & Co., 55 Franklin St., New York.

Starkweather & Williams Co., 47 Exchange Place, Providence, R. I.

Sam Haight & Co., 66 Batterymarch St., Boston.

United Supply Co., 826 Lafayette Building, Philadelphia.

Bay State Chemical Co., Boston.

B. Heller & Company, Calumet Ave. & 40th St., Chicago, Ill.

W. T. Benson & Co., 164 St. James St., Montreal, Can.

A. R. Cullin, 104 South Adams Ave., Margate, N. J.

Among the letters received were the following:

W. S. Culbertson, United States Tariff Commission, Washington, D. C.—"Several of the members of this commission will be present at your conference in January. It is needless for me to say that this Commission is greatly interested in any movement looking toward the standardization of American colors."

(*Continued on page 7*)

Inquiry Department

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department, for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Insoluble Matter in Fuchsine

Question—What is the cause of the insoluble matter and dull shades of some lots of American made Fuchsine?

Answer—Most of the American Fuchsine is made by the old process and in the course of heating the batch conditions sometimes become favorable for the formation of both Nigrosine or Induline bases and Phosphine. Other complicated bases result and form tarry matters which resist solution and prevent even the true Rosaniline base from dissolving in the proper manner. The New Fuchsine process (Formaldehyde process) on the other hand, overcomes most of these difficulties and the result is a product much superior in solubility, crystallization and brilliant shade. The manufacture of Rosaniline base by the New Fuchsine process not only improves the Fuchsine crystals but when used for Alkali blue, Soluble blue, Cotton blue, Spirit blue, etc., gives a better line of products throughout the series.

Government Requirements on Khaki and Drab

Question—What are the United States Government's requirements for the dye of Olive Drab or Khaki on uniform cloths?

Answer—Since the beginning of the war the two most severe requirements have been dropped, viz., 24 hours in strong Lactic Acid and 10% Citric Acid. Formerly, these two tests eliminated even Alizarine Reds and gave a practical monopoly to two reds of German manufacture which were necessary in making the required shade. Now, the only tests the samples must stand are 10 minutes at a boil in 80 grains of Oleine soap and 10 minutes at a boil in 10 grains Carbonate of Soda to a pint of water. In all cases the samples must stand as well as the standard sample furnished by the Quartermaster. In addition, there is a light test of 30 days in the weather, but as this is uncertain at this time of year, a 48-hour Ultra Violet Ray exposure is considered an equivalent in some departments. The full specifications will be furnished by the various Quartermasters Departments, if applied for by those interested in filling contracts.

Fast Navy Blue on Cotton

Question—What dyes are at present available for producing fast Navy Blue on cotton?

Answer—The only dye that will answer all requirements is vat dyed Indigo, using the synthetic or natural products, both of which are scarce at present but with hope of greater supply in the near future. The scarcity and extremely high price of the remnants of German vat blues makes their use for heavy shades impractical at present. The same may be said of Sulphur Blues, although there has been some talk of American makers offering them in a few months. While there are at present no developing blues of American make it is expected to soon have the type generally known as Blue B.H., which when developed with Beta Naphthol gives a full rich navy blue fast to everything but Chlorine and light. Gallocyanine, which is sold as Alizarine Blue for wool and is used for navy goods is capable of being used on cotton, but is better adapted to printing than to dyeing. The chrome mordant may be applied to cotton by the Koechlin method but if the chrome mordant is not well fixed there is no hope of obtaining a fast dyeing afterward. If facilities are at hand to pad the goods with Chromium Acetate solution, then steam at about 5 lbs. pressure and wash well in a weak Sal Soda, they may be dyed in a neutral bath and we will obtain a fast navy blue. The depth of the blue depends on the amount of Chromium Hydroxide fixed on the cotton and the fastness will depend on the fixation of the mordant in the fibre. If the mordant is only precipitated on the surface of the fibres it will both crack and wash off but if there is a proper union of mordant and fibre the dyeing will be fast.

Methods in Use Before Introduction of Vat Colors

Question—What was the fastest dyestuff of simple dyeing process before the introduction of the vat colors?

Answer—Among the cotton dyes this position was probably occupied by only one product, a yellow made by the Clayton Aniline Co., of England, named Chlorophenine, a Primuline derivative. This dye was a direct color of a shade like Chrysophenine but absolutely fast to acids, alkalies, washing, light and chlorine bleach. Among the wool dyes the most notable were the Alizarine Sapphirols, Bayer, sold in America under the names S. A. P., S. A. E. and S. K. Y. They were dyed as acid colors and notable for both fastness and even dyeing qualities. When American manufacturers reach such dyes we will have good cause to be proud of their attainments.

Stain for Fumed Oak

Question—What aniline dyes are used to produce the stain for fumed oak which will show the quartering marks light instead of dark?

Answer—All aniline dyes, whether water, spirit or oil soluble when applied to quartered oak will dye the flakes a darker color than the rest of the wood. The only satisfactory stains for this purpose have been made from chemical mixtures, the favorite one being Ammonia, Bichromate of Soda and Pyrogallic Acid in varying proportions. This mixture must be kept cool and in a closed vessel. After applying it the wood must be washed off well and, as it raises the grain slightly, the surface needs sandpapering.

Notes of the Trade

During the week a large printing ink house has decided to invest a million dollars in equipping a plant for the manufacture of dyestuffs and especially paranitraniline which is used largely in the production of para fast red. This new product will find a good market among printing establishments as the color is used extensively in lithographic work. Already a quantity has been produced and after thorough tests it has been found entirely satisfactory.

The American Printing Co., of Fall River, Mass., is planning to construct a 73 x 38 foot three-story brick building to be used as a caustic house. The cost will be $6,000.

American manufacturers are not devoting much time to the production of rhodamine for the reason that it has been found that other colors can be successfully substituted for this material. For instance, the largest match manufacturers are now using American-made scarlets for coloring the head instead of rhomadine. The scarlets are much cheaper and answer the purpose just as well.

New machinery which includes two new printing machines, is being installed in the new additions which are now nearing completion at the plant of the Imperial Printing & Finishing Co. These additions consist of 43 x 81 feet, one-story bleach house, a two-story 42 x 27 foot building which, it is understood, will be used as a packing room. These improvements will cost in the neighborhood of $80,000. The company specializes in back-filled tickings and other bedding and is doing a very successful business.

The Standard Silk Dyeing Co., of Paterson, N. J., at Van Houten and Mill streets, has just acquired 140,000 square feet of ground adjacent to its plant and will erect two new buildings, one 153 x 50 and the other 245 x 144. The former will be used as a dyehouse, and the latter for a finishing department. Both buildings will be of brick, and will be equipped with the most modern machinery. There will also be new storage buildings and a boiler and engine room, it is understood. When complete the company will have 300 to 400 hands on its pay roll.

The Provident Manufacturing and Chemical Co., Los Angeles, Cal., capital $10,000. H. S. Hollins, Frank Hollins and D. W. Coons.

The Coolrite Co., Ithaca, N. Y., capital $5,000. Coolrite and chemical products. G. F. Simpson, A. W. Browne, N. Hanford, Ithaca, N. Y.

Plans for National Association Progressing Favorably

(*Continued from page* 4)

H. A. Hirsh, 68 William St., New York—"Your suggestion of a meeting in New York during the week of January 21st, not only meets with my approval, but I think you will find it will meet with the general approval all along the line."

B. Brown & Bro., 237 Water St., New York—"We consider it a very good idea if the color and chemical dealers and manufacturers would combine in an association similar to other associations, and lay down a set of rules for transacting business to eliminate slipshod business such as is being carried on at the present time by various jobbers in New York.

The Bayer Company, Inc., 177 Hudson St., New York—"It will be quite agreeable to us to have a meeting called for the purpose suggested in your letter during the week of January 21st, 1918, and we shall have our representative at the meeting."

E. C. Klipstein & Sons Co., 644 Greenwich St., New York—"The standardization of American made colors and dyes seems advantageous to us, and we are open to any suggestions along these lines."

Delta Chemical Company, Inc., 11 Warren St., New York—"We believe that the week of January 21st, will be acceptable to us, and we will be more than glad to attend."

Geo. H. Morrill Co., Norwood, Mass. —"We are interested in the idea and would be glad if you will extend to us an invitation for one of our representatives to be at this meeting when it takes place."

The Seydel Manufacturing Co., Jersey City, N. J.—"We heartily approve of the conference you propose, and have reserved the week of January 21st, for this conference. We trust you will be successful in your efforts to get the dyestuff manufacturers together and you have only to call upon us for any aid which we can give you."

Dicks, David & Broadfoot, Inc., 302 Broadway, New York—"We consider the calling of a conference of dealers and manufacturers of American made colors and dyes an admirable undertaking, and will be glad to be of any assistance possible, in bringing it about. If there is anything further we can do in the matter, the writer is entirely at your service."

New Colors

In the next issue of the REPORTER we will announce some new colors which are to be placed on the market.

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Elisha Hewitt, Secretary and Treasurer

Myron Drew Reeser, Managing Editor

Dyestuffs and Advertising

Perhaps the subject of advertising has caused the manufacturer as much worry as any particular part of his business and certainly it has taken its toll from his pocketbook.

Advertising is as much a vital part of any commercial enterprise as is the plant itself and should receive the same close attention that is given by the manufacturer to matters of contract and equipment.

Some time ago advice on advertising would have met with no response from the manufacturer for in that chaotic period no attention was given to the method or means of getting publicity but simply to get it any which way in the hope that some might fall upon fertile soil.

We cannot hold the manufacturer wholly to blame for this, but the result of misdirected and misleading advertising has been in many cases a stumbling-block to consumers.

To establish the industry on a permanent footing calls for radical changes in many branches and particularly in the preparation of advertising copy.

We suggest the following as a means of making advertising yield returns.

The Establishment of a Publicity Association

We would advise the establishment of a Co-operative Publicity Association of Dyestuff Manufacturers who would write and direct the placing of educational publicity for the industry.

We would suggest that this matter be taken up at the meeting of dyestuff manufacturers to be held in New York City during January, and that a schedule of cost and procedure be drawn up by an advertising man who knows the industry.

We would further advise the formation of a committee composed of advertising representatives of several large companies who would be given a specific sum to spend in educational advertising of products and developments in the industry.

The committee could censor all of the publicity given out by the association and could aid the press in eliminating the evil of misleading advertising.

The same thing is being done in a number of other lines, notably lumber, rice, fruits, paint, cranberries and other products. Surely the educational feature is necessary in the dyestuff industry and can be applied more readily to an infant industry than to one established for years.

Perhaps advice of this nature will be misunderstood, particularly as it comes from a trade publication, but there are honest trade papers even as there are honest dyestuff manufacturers.

Only by elimination can we find the reliable maker of colors and in the same way must we pass upon the trade publications, and a reliable paper should not fear the examination of a committee.

What would it mean to you who are in the market for dyestuffs and allied chemicals to be able to look upon the advertising of a company as being an announcement of products that they actually manufactured or controlled?

We are laying ourselves open to criticism and perhaps at the present time are reproducing in the Reporter advertising of some company that is of questionale reputation and if so *we want to be told of it.*

We were advised a number of times to let things that are unpleasant be forgotten. But the press cannot co-operate with the consumer and at the same time print questionable advertising. If the Reporter is to be what we want it to be we must guard the interests of the consumer.

If there is to be formed an association of manufacturers of dyestuffs at the meeting to be held in January, the dominant influence must be co-operation.

If there is to be formed a permanent dyestuff industry the right kind of advertising is of vital importance and any reliable trade paper should want to see this consummated.

Domestic Potash Supply

Rapidly Developing as Result of War Protection

This country has always depended upon Germany for its supply of potash. Germany is no longer a source of supply. Consequently, since the declaration of war potash has jumped from $39 a ton to a price ranging from $250 to $600 per ton.

The problem of producing a sufficient quantity at home to bring the price down to normal has proved a serious one to the government. Upon its answer depends the existence of many important industries.

In Searles Lake lies the solution of the problem. It contains the largest deposit of potash in the United States, according to the reports of the United States Geological Survey, and is the only deposit of sufficient size to break the German monopoly.

Searles Lake forms a great white patch on the boundary line between Inyo and San Bernardino counties, California. Beneath the surface of this "lake," which is a glaring mass of crystals, lie buried thousands upon thousands of tons of potash—enough to supply the demand of this country for many years.

The legislation in relation to the potash industry was passed shortly before Congress adjourned. It withdraws the Searles Lake lands from entry and provides that the potash deposit may be operated by the United States or may be leased by the United States upon satisfactory terms.

In case the land is leased it is the right of the President to regulate the price of the potash extracted and to regulate its disposal in such a manner as to secure its distribution and use wholly within the United States.

There are two companies now operating in the Searles Lake basin, the American Trona Company and the American Borax Company. It is probable that the government will lease the land to one or both of these companies. The Trona Company has already expended several hundred thousand dollars on development work and in the construction of experimental plants and a railroad, but owing to the fact that it has been involved in litigation over title to the lands only a comparatively small amount of potash has been produced. Under a lease granted by the United States it will be in a position to push its enterprise with safety and the assurance that its investment will be protected.

The normal consumption of potash in this country is about 230,000 tons per annum. To produce 100 tons a day at Searles Lake would require a plant costing over $1,000,000. It is stated that the Trona Company stands ready to make an investment of between $4,000,000 and $5,000,000 should it secure a satisfactory lease from the government.—*Journal of Commerce.*

August Klipstein, Jr., Wins Laurels

Among those graduated from the Officers' Training Camp at Plattsburg, on November 24th, was August Klipstein, Jr., son of August Klipstein, President of A. Klipstein & Company, 644 Greenwich Street, New York City, who has received commission as First Lieutenant in the Infantry.

New Crop of Madras Indigo

(Consul Lucien Memminger, Madras, India, Sept. 25.)

A crop report of the Madras Department of Agriculture, just issued, states that the area under indigo in the Madras Presidency in the 1917-18 season is now estimated at 265,700 acres as compared with an estimate of 335,000 acres made at the corresponding date last year. The decrease is due partly to failure of rains at the sowing season in the Deccan, but mainly to the fall in the local price of indigo, dating from January, 1917. This fall did not affect the sowings in the southern districts, which take place normally in December-January.

An estimate of outturn at this stage is difficult, as much depends on the proportion of the crop that will be actually used for making dye. At least a third of last year's crop remains unerported owing to freight difficulties, so that the local demand for dye is poor, and in these circumstances some of the crop may be used for green manure. The report says that about 1,700 tons of dye can be manufactured from this year's crop, but that it is unlikely that more than 1,200 tons will be made.

Green and Dry Leaf Indigo

In southern Madras both the green and the dry leaf processes of manufacturing indigo are followed; in the northern parts indigo is extracted only from the green leaf. Dry-leaf indigo is not exported; and, in general, the poorer qualities of Madras indigoes are used in the country and only the better ones sent abroad.

It is said that perhaps the best average qualities of indigo in southern India are produced in the districts adjacent to Madras. They are characterized by low specific gravity, bright color, and high indigotin content, and are generally comparatively free from adulteration. The season extends from August to January.

From the northern districts the qualities are somewhat variable, especially in Kurnool and Cuddapah, where some of the best grades are available, but where also a lot of inferior product is marketed. The cakes are graded according to size and quality, and deliveries later on in the season are generally superior to those marketed earlier. The season extends from July to February.

Qualities Produced in Other Districts

The indigo from Nellore and Gudur is generally of good quality, coming in large cakes, rich in color, light to moderate in weight, and usually free from adulteration. The season extends from November to April.

Gunturs are rather more mixed in quality than Nellores. The season runs from July to February, and deliveries during the earlier months are inferior in quality to those which come upon the market later.

Lankas from the Godavari and Kistna districts come upon the market from June to November. They are put up in small cakes, rather hard, and of medium specific gravity and slightly coppery color.

In general it may be stated that the quality of the production is dependent to some extent upon the rains. When these are timely the average quality is high, but when the rains are late or insufficient the specific gravity of the cakes increases and the quality of the indigo is slightly inferior.

The export business is centered in Madras, the indigo being shipped in cases containing, for Egypt, 80 to 90 pounds net, for Japan 150 pounds, for Europe and America 250 to 300 pounds net.

Wilson Orders Imports Placed Under License

PROCLAMATION EXTENDING EMBARGO PROVIDES NEW AND POWERFUL WEAPON AGAINST GERMANY

By a proclamation issued recently placing under license the import of many articles, President Wilson put into the hands of the War Trade Board a powerful weapon to be used against firms controlled by German capital.

Notable in the South American countries named in the proclamation is Venezuela, where German capital is in full command, and from which pro-German propaganda radiates in great volume. German-controlled firms in Mexico, Brazil, Argentina, Chile, and other countries also will be made to feel the full force of America's power to control its commercial relations.

In Venezuela German money dominates the commercial situation almost to the complete exclusion of money invested by nationals of other countries. With America placing a ban on its imports, this capital will be stagnant and powerless to develop its interests.

It is entirely probable that within a short time the terms of the import proclamation will be broadened to include many other articles, as it is the determination of the Administration, through the War Trade Board, to use its full powers. There is to be no middle course where the German-controlled firms are concerned.

Stern measures were adopted at this time, it was said, largely because of the attempts by German interests in many countries to stir up discontent and foment revolution. It is probable that in countries such as Venezuela the Government will go to the extreme of bringing about an isolation of the firms, and a complete disruption of all their foreign trade.

The proclamation issued recently takes in European, as well as South American, countries, thus making it possible for the Government to cut off commercial relations with firms in the northern neutral countries of Europe and in Spain if it sees fit. The weapon thus supplied places this nation in almost supreme control.

Text of Import Proclamation

The President's proclamation follows:

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA. A PROCLAMATION.

Whereas, Congress has enacted, and the President has on the 6th day of October, 1917, approved a law which contains the following provisions:

Whenever during the present war the President shall find that the public safety so requires and shall make proclamation thereof, it shall be unlawful to import into the United States from any country named in such proclamation any article or articles mentioned in such proclamation, except at such time or times, and under such regulations or orders, and subject to such limitations and exceptions as the President shall prescribe, until otherwise ordered by the President or by Congress. Provided, however, that no preference shall be given to the ports of one State over those of another.

Now, therefore, I, Woodrow Wilson, President of the United States of America, do hereby proclaim to all whom it may concern that the public safety requires that the following articles.

Then follows a general list of products, many of which are not of particular interest to the dyestuff industry.

Some few articles, however, are of more or less interest to the readers of the REPORTER and are as follows: cotton, chrome, chrome ore, flax, hemp, hides, leather, sisal, tanning materials, tin concentrates, wool, etc

The proclamation furthermore says, that these articles,—

Shall not, from and after the date

of this proclamation, be imported into the United States or its territorial possessions from Ayssinia, Afgnanistan, Albania, Argentina, Austria-Hungary, Belgium, her colonies, possessions and protectorates; Bolivia, Brazil, Bulgaria, China, Chile, Columbia, Costa Rica, Cuba, Denmark, her colonies, possessions and protectorates; Dominican Republic, Ecuador, Egypt, France, her colonies, possessions and protectorates; Germany, her colonies, possessions and protectorates; Great Britain, her colonies, possessions and protectorates; Greece, Guatemala, Haiti, Honduras, Italy, her colonies, possessions, and protectorates; Japan, Liechtenstein, Liberia, Luxembourg, Mexico, Monaco, Montenegro, Morocco, Nepal, the Netherlands, her colonies, possessions, and protectorates; Nicaragua, Norway, Oman, Panama, Paraguay, Persia, Peru, Portugal, her colonies, possessions, and protectorates; Rumania, Russia, Salvador, San Marino, Serbia, Siam, Spain, her colonies, possessions, and the protectorates; Sweden, Switzerland, Turkey, Uruguay, or Venezuela.

Except under license granted by the War Trade Board in accordance with regulations or orders and subject to such limitations and exceptions as Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Egypt, France, her colonies, possessions or protectorates; Great Britain, her colonies, possessions or protectorates; Guatemala, Haiti, Honduras, Italy, her colonies, possessions or protectorates; Japan, Liberia, Mexico, Monaco, Montenegro, Morocco, Nepal, Nicaragua, the colonies, possessions or protectorates of The Netherlands; Oman, Panama, Paraguay, Persia, Peru, Portugal, her colonies, possessions of protectorates; Rumania, Russia, Salvador, San Marino, Serbia, Salvador, San Marino, Serbia, Siam, Uruguay or Venezuela, or to any territory occupied by the military forces of the United States or the nations associated with the United States in the war.

Except at such time or times, and under such regulations and orders, and subject to such limitations and exceptions as the President shall prescribe, until otherwise ordered by the President or by Congress.

The regulations, orders, limitations and exceptions prescribed will be administered by and under the authority of the War Trade Board, from whom licenses, in conformity with said regulations, orders, limitations and exceptions, will issue. Said proclamation of Aug. 27, 1917, is hereby confirmed and continued, and all rules and regulations heretofore made in connection therewith or in pursuance thereof, including the executive order of Oct. 12, 1917, are likewise confirmed and continued and made applicable to this proclamation.

The articles mentioned in the export proclamation, which are of interest to the REPORTER'S readers, are,—caustic soda, soda ash, etc.

At a later date we will publish a more specific list of articles that are of interest to the dyestuff industry, upon which the Government is now at work.

Cotton Goods Dyeing and Bleaching

THIS INTERESTING ARTICLE APPEARED IN A CURRENT ISSUE OF A WELL-KNOWN TRADE PUBLICATION AND IS REPRODUCED AT THE REQUEST OF A MEMBER OF A LARGE DYESTUFF MANUFACTURING PLANT.

It is difficult to give an exact working formula for the bleaching of cotton piece goods unless some idea is supplied regarding the kind and character of the goods to be bleached. Without this information any suggestion will have to be made with some reservations.

The amount of caustic soda for boiling out depends upon the coarseness or fineness of the fabric. As a general rule the finer the fabric the greater amount of caustic necessary. The amount of soda that can be used will be about 5 per cent of the weight of the material to be bleached and the boiling in the kier may be about six hours. A satisfactory solution of caustic soda should stand at about 1.5 deg. Be. The actual bleaching should be done in a chloride of lime bath standing at 1.4 deg. Be. and kept immersed in the circulating bleach liquor until a sample shows the proper shade of white. From the bleaching bath the goods are passed through a weak sour made up with oil of vitriol to stand at about ½ deg. Be., after which the goods are thoroughly washed in an ample volume of water. It might be advisable, however, to make use of a solution of soda hypochlorite instead of bleaching powder and oil of vitriol; the reason being that when goods are bleached in the hypochlorite bath no calcium salts remain in the fabric.

Regarding the use of a rotary washer and wringer instead of an extractor, it might be well to say that this is not the ideal method of handling these goods, since an extractor or whizzer is far more economical in operation and produces a better extraction than can possibly be done by means of a wringer or other form of squeeze rollers.

Pressure in the Kier

Regarding the pressure in the kier, 5 pounds per square inch should be sufficient for all bleaching. A greater pressure than this is unnecessary as no good results are obtained therefrom. But here again the weight per yard of cloth and fineness of texture has an influence upon whether a pressure greater or less than 5 pounds per square inch is desired. Loosely woven cotton fabrics are more readily impregnated by the circulating liquors than fabrics made of hard twisted yarns or when they are closely woven. It is less a question of pressure than it is of time. Time is an important factor in preparing the goods for the bleach and consequently the longer the immersion in the soda the better will be the action of the bleaching solution.

Regarding the advisability of saturating the goods with oil of vitroil before putting the cloth in the caustic soda, there seems to be no occasion for this and the writer does not know of any instance in concerns where this practice is resorted to. No advantage can be seen to result by this process. The object of the soda boil is to remove from cotton cloth traces of waxes, fats, etc., and which are dissolved in a hot alkaline liquor, while oil of vitriol will not cause the removal of these impurities, but might have a serious influence upon the fabric. The experience of this inquirer seems to indicate that the use of oil of vitriol is absolutely unnecessary.

Regarding the making of a good white by means of an aniline dye, the best method is to dissolve a suitable aniline or soluble blue in water and strain it; making a solution of about two or three ounces of dye per gallon of water. The reason for straining this solution is to remove any possibility of undissolved particles remaining in suspension which would fix themselves upon the bleached cloth, thereby causing spots that cannot be removed by any subsequent treatment. This aniline dye solution should be added in small portions at a time to a bath of cold water through which the cloth passes either in rope form or preferably full width. If the cloth traverses this blue solution in rope form there is a strong probability of longitudinal streaks appearing on the goods which cannot subsequently be removed. The amount of blue solution to add to this "white dyeing" bath may not be greater than sufficient to add an ounce and a half or two ounces of dye per 100 pounds of bleached cloth. Any excess of dye over this quantity is likely to tint the goods heavier than desired.

Preventing Tendering

Preventing goods from being tendered is a matter of considerable concern to all bleachers. The principal tendering agent made use of by bleachers of cotton goods is either oil of vitriol or muriatic acid, both of which, when allowed to dry upon the fabric, have a marked destructive action upon cotton, causing the yarns to disintegrate, and it is the failure to wash out these acids after the cloth has been treated with them that is the direct cause of tendered fabrics. The importance of thorough washing can thus be seen and in the wash house no guess work should be tolerated on the part of the foreman. If any doubt exists as to the thoroughness or completeness of the wash recourse should be had to the use of blue litmus paper or a suitable chemical reagent for detecting the presence of oil of vitriol or hypochloric acid. Excessive bleaching may also have an injurious effect upon cotton goods, that is, where the strength of the bleach solution greatly exceeds 1.5 deg. Be. Sometimes a mistake occurs and two or three times the amount of dissolved bleaching powder finds its way into the bleach bath and the consequence is that the cloth is readily tendered.

All the chemicals used are injurious to the hands and it is desirable that the workmen who are compelled to handle these chemicals should wear rubber gloves. Bleaching powder solutions act differently upon the hands of different individuals; upon some they appear to have but little action while upon others the hands continually perspire and where this peculiarity is acute the workmen so affected should be shifted occasionally to some other job in the bleach house.

Regarding the sediment in caustic soda, we doubt if this has any direct injurious action upon cotton goods. Commercially pure caustic soda should have no distinct amount of undissolved matter and when such is present it should be tested to ascertain its nature. If it consists of iron, as caustic soda frequently does contain traces of oxide of iron, such caustic soda should be rejected for bleaching house work, since iron stains are likely to result therefrom which cannot be subsequently removed. Cloth should be boiled in baths heated either by direct steam, blown into the dyebath, and which is the most common practice, or the water in the dye ketle may be heated by a closed coil. This latter custom, however, is not very common in American dyehouses. No injury to the cloth will result by the use of either method, but where an open steam pipe is used, it should be so located in the kettle that the steam will not blow directly against the cotton goods in the tub. The steam jets should be broken by means of a perforated or false bottom.

Dyeing Goods Black

Regarding the dyeing of black upon bleached cotton cloth, without doubt the easiest method is the one with which this enquirer is most familiar, viz., logwood. Perhaps if he uses hematine crystals instead of 57 deg. logwood extract and adds a small quantity of extract of fustic to his dyebath, it is quite likely that instead of getting a black with a blue shade, such as he now complains of, he will get a full rich black which may be jet in tone, according to the amount of fustic he uses. Too much fustic, on the other hand, will swing the shade of black to the green side and he will then have to cut down the amount of fustic accordingly.

Just how to recommend the dyeing of these goods without the use of jigs we are at a loss to suggest, but it is possible that an open kettle heated by direct steam and equipped with a revolving winch will be the cheapest and perhaps most satisfactory method to apply under the circumstances. Care should be taken, however, from time to time to spread the goods over the winch as much as possible in order to get rid of the possibility of streaks. Sulphur blacks on cotton piece goods are not to be recommended unless the dyehouse is equipped with what is known as a continuous machine; that is, a series of rectangular dyeing compartments, each one provided with a set of rubber squeeze rollers; the cloth passing through each compartment, and another series of guide rollers and then from one compartment through the rubber squeeze rollers into the next compartment, and so on through the several compartments, until finally the cloth leaves the continuous machine and enters the washer. Some sulphur blacks require an intermediate oxydizing, that is, the squeezed cloth before washing is passed over and under a series of rollers which will accommodate about 50 or 100 yards of cloth in the air and after being aired the cloth continually passes through the washing machine. This method of dyeing cotton cloth with sulphur blacks is cheap, efficient and thoroughly satisfactory so far as shade and depth of color is concerned, but is adapted only to dyehouses where a large output is contemplated.

These suggestions and recommendations are made in the order in which the inquiries have been submitted, and it is hoped that they will supply the enquirer with the information he desires.—*Textile World Journal.*

Black with Logwood

The goods are run in padding mangle through a solution of myrobolams or chestnut extract, using 16 to 20 lb. myrobolams to 100 gallons water, or if chestnut extract 10 to 12 lb. to 100 gallons, using the solution boiling. The goods are allowed to lie overnight and are then run again in a padding mangle, no washing being required, through a cold iron liquor solution of 8 to 10 deg. Tw., and again allowed to lie overnight. They are then given a lime scald in a jigger, using 1 to 1½ per cent of the weight of the goods of dry slaked lime, working for half an hour, keeping the solution boiling, and finally two to four passages in cold water.

This washing is used as a precaution in case the iron liquor has not been properly killed in the lime scald, as the acid would make the logwood insoluble, unless an alkali was put into the dyebath. It would cause useless waste of the logwood, and result in poor and bare colors. Many dyers neglect this precaution, with the result that redyeing has to be resorted to.

AMERICAN
DYESTUFF REPORTER

A Weekly Publication devoted to
DYESTUFFS, COLORS and ALLIED CHEMICALS
Circulating Wherever Dyestuffs are Used

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The Toluol Situation

A few years ago when all the coal tar distillation of the United States was confined to practically one factory the aim was only to produce Naphthaline, Solvent Naphtha and Benzol, with practically no attempt to recover Toluol. There was no market for it in this country because we made none of its immediate derivatives. We imported all intermediates which involved their use as a starting point, and their prices were not disproportionate to the derivatives of other aromatic hydrocarbons. The first Badische synthesis of Indigo started with Toluol and was abandoned because it was figured that the world's available supply of this material could never meet the ambitions of a firm that had determined to displace natural Indigo entirely. If the world's present production of Toluol had been realized then, we might have seen synthetic Indigo many years earlier, and the present process, utilizing Naphthalene, might not have been discovered at all.

The chemical market remembers the flurries in Picric Acid in the early days of the war and also how some speculators were caught when the word was passed that Picric Acid had been set set aside in favor of T.N.T. Tri-nitrotoluol had displaced it because it was safer, although not so powerful an explosive. This change in explosives ran Toluol up to unheard-of prices, and even when the supply began to increase the entry of this country into the war again made the situation acute.

The gas works of the country are now removing as much Toluol as possible from the illuminating gas and saving it for conversion into T.N.T. One dyestuff and intermediate manufacturer after another sees his supply cut off and unless he can show that the output of his works goes ultimately into Government goods he gets no more Toluol, and of course none of the derivatives of it.

But!—suppose some day in the near future a chemist, or some mere person who doesn't know any better, finds a way to protect the interior of shells from the action of Picric Acid and it becomes possible to return to this more powerful explosive—then there would be a change in the market.

There is always a possibility of such things and if Toluol became, for a time, a drug on the market we would be able to buy Toluidine, Metatoluylenediamine and the other essential intermediates at considerably lower prices and give an added impetus to our domestic dye industries.

There is much more Benzol than Toluol produced and there will be many advantages for the dyestuff manufacturers if circumstances cause a return to Picric Acid as the principal explosive.

The same would be true if a new explosive should be invented. We may expect a sudden change in the Toluol situation as soon as there is a prospect of it being released from military duty. At present the manufacture of dyes is seriously threatened by the Government's demand for all the available Toluol. The dull effects will be felt in a few months and the problem is one worthy of the concerted attention of all interested in the welfare of the dyestuff industry.

Much has been said already regarding the interdependence of the dye, explosive and pharmaceutical industries, and their importance to the national defense. They should all be capable of existing at the same time while contributing to each other, and in periods of necessity throw all their resources together. The German system evidently had this arranged in a satisfactory manner and protected private capital that formed part of the system. None of our system is Government owned and whatever capital is invested in the dyestuff branch may now be jeopardized and the profits of the explosive branch increased by legislative control of raw materials. We must win the war, and we need the explosives, but at the same time feel that recognition should be taken of the fact that much capital has been invested in dye factories and much hard work has been done up to this time without many of the newer plants having made enough money to repay them.

A commission composed of men from both industries might be able to decide on a plan that would take care of the needs of explosives and dyes equitably, both as regards Toluol and Nitric Acid. As a magazine writer said recently: "We are willing to have our pie crust made of corn meal, and enjoy it, if we know that the wheat flour is being used for a good purpose, but when we discover that our sacrifices are increasing the profits of some other fellow we naturally object."

We believe the matter can be adjusted by those who know how. The dyestuff men are not united at present and have no great popularity at Washington, while the explosive interests have considerable influence and know how to get what they want. Some have said they see no reason for a dyestuff manufacturers' association, but there are very many reasons, —think it over.

The Situation in Dyestuffs

There is a marked demand in the trade for bright shades. This is no doubt due to the coming Spring, and according to the advice of manufacturers the demand will be met.

A number of early inquiries have been for greens and blues. Quite a number of manufacturers of ladies' suits are calling for khaki shades for materials which will have a military tone.

Owing to the demand of the Government for this color the orders of the manufacturers will perhaps be cut, but one manufacturer advises us that in his opinion a fair percentage of their demand will be met.

During the week there has been very little change in the standard colors, the majority of manufacturers being engaged on filling contracts for Government requirements.

Some new companies are now placing colors on the market and there is a marked quality and uniformity in each product which should be of much encouragement to the trade.

The REPORTER will be glad to answer any inquiries.

Malachite Green

A company in New York City is now placing upon the market a Malachite Green in crystal form which is of a very high quality. This product is manufactured in their own plant.

To Increase Potash Supply

Secretary Lane today issued regulations for permission to prospect for potash on public lands. For some years all lands known to contain potash have been withdrawn from public acquisition, but the cutting off of potash from Germany makes it necessary to develop this country's supply of the valuable mineral.

Permits may be issued to citizens, associations, and corporations of the United States for the exploration of not exceeding 2,560 acres each of land in compact form, the permits to be for a period of two years. If potash is discovered in commercial quantity and quality, the permittee will be entitled to a patent for one-fourth of the area covered by his permit, the remainder to be subject to lease by the Government.

Alizarine Red

America is now producing Alizarine Red, and a dyestuff manufacturer is putting this on the market in the form of a 20 per cent paste which it is claimed is equal in all respects to that formerly imported. Alizarine Red is chiefly used in cotton printing and wool dyeing, and any comments on its application are not necessary as this is well known to the trade.

Notes of the Trade

We are informed that the Grasselli Chemical Company of New York City has declared an extra dividend on the common stock which amounts to approximately $4.15 a share. This brings the total outstanding issue to $15,000,000 which is the amount authorized.

L. H. Butcher Co., New York and San Francisco, has ben incorporated under New York State laws to manufacture and deal in colors, chemicals, minerals and industrial ores. The company's principal offices are at 100 William Street, and the officers are S. L. Schwartz, president; J. E. Schwartz, vice-president; Virgil G. Thomas, secretary and treasurer. Messrs. Schwartz are in San Francisco, and Mr. Thomas in New York.

The directors of the General Chemical Company of New York City, have recently declared an extra dividend of 5 per cent on common stock at par, and a special of 2½ per cent in cash which is payable to the common stockholders on February 1st. The regular quarterly dividend of one and one-half per cent was declared on the preferred stock.

The Chemical Corporation of New Jersey, has moved its main office from Broad Street to 101 Belevista Avenue, Belleville, N. J.

Reiff & Nestor Co., Lykens, Pa., have been incorporated under Pennsylvania laws, with a capital of $140,000, to handle dyestuffs. J. P. Nestor is treasurer of the company.

The Brown-Ferrer, Inc., Plainfield, N. J., has been incorporated to manufacture chemicals. The capital is $50,000, and the incorporators are John S. Johnston, Gustave and Louis A. Clement.

Chemical trading between this country and South American countries, according to the National City Bank of this city, is about three times as great as it was previous to the war. For the first eight months of this year our exports to South America totalled $188,000,000 as compared with $65,000,000 for the same period of 1914.

H. G. Stevensen, Philadelphia, dealer in aniline colors, has moved his offices to the laboratory and warehouse at 5 East Osborne Street, Wissaheckon.

The Franco Color Co., Philadelphia, has been organized by W. H. Ott and Willaim Blatteau to sell colors.

The acid department of the Aetna Explosives Co. plant at Drummondsville, Que., is now being operated to capacity on the production of sulphuric and nitric acids, with a production of approximately 3,000 tons a month. This plant was recently reopened by the Aetna Co. after being closed for several months.

The Brown Ferres Co., Inc., manufacturer of phenacetine and other chemicals has leased the two-story reinforced-concrete factory building on Meadow Lane, Newark, N. J., from the Ezo Co. The company is planning for immediate occupancy, and will construct an addition to double the capacity of the building.

The National Synthetic Co., Fords, N. J., manufacturer of chemicals, has awarded a contract for the construction of three new additions to its plant, about 38 x 260 feet, 54 x 84 feet, and 50 x 76 feet, to cost about $75,000. Tullis & Blanchard, 326 East Forty-second Street, New Yory, are the contractors.

Exportation of Domestic Aniline Colors

Notwithstanding the constantly increasing demands of the domestic market and the handicap caused by munition manufacturers drawing more and more largely on the available supply of toluol and other coal-tar derivatives vitally essential as raw material for the dyestuff industry, exports of aniline colors during September show a gain over the preceding month of $66,800, or 21.9 per cent, according to a statement issued to-day by the Bureau of Foreign and Domestic Commerce, of the Department of Commerce. September exports by Customs Districts indicate that $261,454, or over two-thirds the total value of all aniline colors shipped abroad, passed through New York; $47,913 through the Massachusetts District, $6,515 through West Coast Districts, $1,630 across our Mexican border, and the remainder through districts adjacent to Canada.

The total exportation of aniline colors for the first quarter of the current fiscal year amounted to $1,173,439, of which $497,106 worth was shipped in July, distributed among 21 foreign countries; $304,768 in August to 21 countries; and $371,565 in September to 17 countries—or an average monthly exportation of $391,146 for the first quarter in which aniline dyes are shown separately in the statistical classification.

England is our best customer so far, having taken $195,195 of the aniline colors exported during the quarter ending September 30, 1917, followed by British India, with $185,967; Canada, $161,581; Spain, $105,504; France, $86,379; Japan, $80,073; Mexico, $75,353; Italy, $67,484, and other countries with less extensive purchases.

It is worthy of note that the United States is the only country which has succeeded in establishing, since the war began, a successful dyestuff industry capable of meeting not only the color requirements of its domestic manufacturers of textiles, paper, paints and pigments, leather, straw, inks, stains, varnishes, waxes, etc., but of exporting considerable quantities to our allies and neutral countries.

Using the quarterly figures as a basis for the estimate, we are now exporting our surplus production of aniline colors at the rate of $4,693,756 annually, or practically twice the value of our entire domestic production for the fiscal year 1914, which amounted to $2,470,096. This refers to values only, which are, of course, much higher comparatively at the present time.

These figures of production and exportation apply to the coal-tar dyes only, and take no account of our equally well developed trade in logwood extract, osage orange, and other vegetable colors.

Patriotism in the Dyestuff Industry

A particularly large service flag has just been hung over the offices of the National Aniline & Chemical Company, 244 Madison Avenue, New York City. Two hundred and twelve members of their organization have enlisted with Uncle Sam and are at the present moment serving with the colors. These 212 employees are distributed as follows: 72 from the Schoellkopf Works, Buffalo, New York; 55 from W. Becker's Works, Brooklyn, New York; 54 from the Benzol Products Works, Marcus Hook, Pennsylvania; 15 from Wappingers Falls Works, Wappingers Falls, New York; the remaining number coming from various smaller offices of the Company.

This Company has also supplied large quantities of Sulphur Khaki for the dyeing of cotton goods for the Government, and Alizarine Blue for Navy uniforms.

National Dyestuff Association

Replies Continue and the Evident Interest Assures the Success of the Movement

Among replies that have been received this week are the following:

Madero Bros., Inc., New York City—"We have your kind communication and would be very pleased to attend a meeting at any time that you may care to arrange. We consider it a very good idea to get all the dyestuff manufacturers in this country together, even if this particular purpose could not be obtained."

Dunker & Perkins, Boston, Mass.—"In reply to your letter relating to the movement on foot toward standardization of our American Colors, beg to say that we are only too pleased to put ourselves on record as being heartily in accord with any movement tending to improve the present conditions of the dyestuffs industry. We would, therefore, be very glad to have you keep us informed as to dates set for any meeting, which we would be very pleased to attend."

Frank L. Young Co., Boston, Mass.—"We would be very glad to join in any movement for the benefit of the trade. Kindly let us know further about the proposed meeting, and we will be glad to co-operate with you."

Dudley D. Gessler, Philadelphia, Pa.—"We would be interested in anything that would tend to standardize American colors and to promote the American dyestuffs industry. You have our best wishes for success, and anything the writer can do to further its purpose he will take pleasure in doing."

Holliday-Kemp Co., Inc., New York City.—"In reply to your favor we beg to say that the date set for the proposed meeting in January will be satisfactory to us and we will endeavor to have a representative present."

John D. Lewis, Providence, R. I.—"Should be pleased to attend your proposed meeting of manufacturers of dyestuffs and the week of January 21st is acceptable to me."

J. G. Rutherford & Co., 505 Broome St., New York—"You can be assured of our coöperation in the proposed convention for the purpose of standardizing American colors. Wishing you success in your good work, etc."

The Barnes Chemical Works, Paterson, N. J.—"We shall avail ourselves of the opportunity to met with you in January next, and await further advice regarding the conference."

Sherman & Mason, 211 North Front St., Philadelphia—"Your ideas on the subject of a standardization of American made colors and dyestuffs are excellent and we are entirely in accord with them. We will be very pleased to attend the meeting to discuss the subject any time during the week of January 21st, 1918, or at any other time which may be convenient to the trade as a whole. We desire further detail as progress is made."

Imex Corporation, 25 Beaver St., New York—"We will be pleased to attend such conference as outlined in your letter and at the time you suggest."

A. & B. Export and Import Corporation, 78 Wall St., New York—"We shall be pleased to attend the meeting referred to in your letter and at the time you mention in January, 1918."

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DEXTER W. HEWITT, President
A. P. HOWES, Vice President
ELISHA HEWITT, Secretary and Treasurer

MYRON DREW REESER, Managing Editor

Regarding the Inquiry Department

In the initial issue of the AMERICAN DYESTUFF REPORTER we published the following announcement regarding our intention to answer any questions that would be asked us by consumers of dyestuffs, colors and chemicals:

> The publishers of the REPORTER have arranged with an independent chemist of wide reputation, who has under his direction one of the best equipped laboratories in New York, to handle all questions of a technical nature which come to us. His services are at the disposal of our readers free of charge insofar as the answering of inquiries is concerned, and he will also be glad to test samples, etc., without charge, except where the process is unusually tedious or expensive, in which case a charge covering the actual cost will be made. We trust that our readers will make full use of this service.

Full use has been made of this service and the department has proven of value to the consumer, as their many letters testify, some of which are as follows:

Gentlemen:

We hope to see your publication grow and believe it has been started along fundamental lines that will attract favorable comment and support from the trade in general.

Thank you for reply to our questions of October 20th.

Gentlemen:

We are very much interested in your inquiry department and shall take pleasure in reading each issue.

If you could give us some information as to where we could obtain a supply of direct browns on the yellow shade, this information would be very much appreciated as we have had considerable difficulty in obtaining this.

Dear Sir:

I have yours of the twenty-third answering my question regarding the combination of dyes to produce white on paper pulp, for which I thank you very much.

The following are a few of the inquiries which were sent us, the writer's name being withheld.

The REPORTER will be glad to answer any inquiry, and to facilitate a reply would advise the use of the number by which each inquiry is designated.

2001. Is it possible for a chemist to make an analysis of a Logwood extract and tell accurately just how much Hematine and Hematoxylon are present?

2002. What are the necessary features for an Alkali Blue to have in order to be suitable for lake making? Several lots that were considered fine for dyeing were rejected by a lake maker as being unsuitable.

2003. Can you inform me how I can obtain a red stain soluble in alcohol which will be impervious to water? I wish to use it in refinishing leather goods and will use a small amount of shellac in the liquid.

2004. Why are Basic dyes and Acid dyes so called?

2005. Why is the Malachite Green now being offered by American manufacturers a bronzy powder, while the old German types were all in flat greenish crystals?

2006. While there are many direct cotton dyes being made, we hear very little of union colors. What is the nature of a union dye and how do they differ from direct cotton dyes?

2007. What are the United States Government's requirements for the dye of Olive Drab or Khaki on uniform cloths?

2008. What dyes are at present available for producing fast Navy Blue on cotton?

2009. What was the fastest dyestuff of simple dyeing process before the introduction of the vat colors?

2010. What aniline dyes are used to produce the stain for fumed oak which will show the quartering marks light instead of dark?

2011. What is the meaning of the term "pure dye" as applied to silk goods? What specifications does a dye have to meet for the purpose?

2012. Have any of the American manufacturers taken up the production of the solid hydrosulphites used for vat dyeing, stripping and discharging?

2013. How is Nigrosine tested by dyeing on wool? The best results we have been able to obtain are all thin greys and blues which wash out and rub.

2014. What is the best way to dye Congo Red and have the shade remain bright for a reasonable length of time?

2015. What are the best dyes to sell to a candy manufacturer which will be bright and yet non-poisonous?

2016. I have some dyeing recipes that call for the use of bichromate of potash, but as this is now so high in price and as I was told that bichromate of soda could be used instead, I would like to know how much of the latter to use to get the same effect, and is there any difference in the working of the two substances?

2017. Several dyers have told me that they prefer Indigotine from natural indigo to that made from pure synthetic indigo. Is this only prejudice, or is there a reason?

2018. What is the cause of the insoluble matter and dull shades of some lots of American made Fuchsine?

Progress of British Dye Syndicate

The report of the British dye syndicate (British Dyes, Ltd.) for the year ending April 30, 1917, indicates that very satisfactory progress has been made. A dividend of 6 per cent was recommended by the board of directors, this being the maximum amount allowed. At the annual meeting, just held, it was stated that the production of dyes continues to be limited by the shortage of certain materials, but notwithstanding this the supply throughout the year has been increased and the variety of dyes extended. An extensive plant for the production of azo colors has been completed and is now in operation.

The range of direct cotton colors has been supplemented by the inclusion of a yellow, violet, and green and the supply of wool colors of this type has been enlarged. The production of methylene blue has also been largely increased, as well as the output of mordant colors, which is now stated to be sufficient to meet the demands made upon the company for dyestuffs used in the manufacture of the varied clothing equipment of both British and allied troops. Among the vat dyes of the indanthrene type a blue and yellow are now being made, and it is hoped shortly to extend the range of these colors. The company has produced a color similar to the alizarin blue dyestuff for wool of exceptional fastness to the action of light.

Manufacture of Intermediates—New Works Planned

Important installations for the manufacture of intermediates, including paranitraniline and beta-naphthol, have been completed. Plants for the manufacture of other products are being proceeded with as rapidly as possible, and as these come into operation they will provide materials from which the variety as well as the quantity of colors manufactured can be augmented.

In addition to the plant referred to, the following important work, as well as much minor work, has been carried out:

(1) The construction of the works railway and its branches has been well advanced toward completion.

(2) A number of large new sheds for the manufacture of intermediates and colors have been completed.

(3) The electrical installation has been completed, and both the old and the new works are now entirely operated by the company's own plant.

(4) A power gas plant has been installed and is in operation.

(5) A water-service reservoir with a capacity of 2,000,000 gallons has been constructed.

(6) A pipe system for the distribution of gas, steam, and compressed air throughout the works is approaching completion.

Coöperation

The work of the research department has received a great deal of attention during the year, and increased facilities for laboratory and experimental work have been provided. As soon as arrangements can be made for the supply of labor and materials, the construction of the main research laboratory at Huddersfield will be commenced, the plans having already been prepared. In the meantime, research work on behalf of the company is being carried on at the Universities of Oxford, Leeds, and Liverpool, in addition to the work done in the several laboratories attached to the works.

The question of coöperation among dye manufacturers has been engaging the attention of the Board of Trade throughout the year, but no definite steps in this direction have yet been taken. The directors of British Dyes have throughout maintained the attitude that they will welcome any tangible proposal for coöperation with other manufacturers, provided the interests of the textile and other industries dependent on the supply of dyes are safeguarded, and provided the coöperation can be carried into effect in a manner consistent with the object for which this company was established.

INQUIRY DEPARTMENT

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department, for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Colorimetric Tests vs. Dyeings

Question—Is a colorimetric test of a dyestuff to be depended upon in all cases or is a dyeing better?

Answer—A colorimetric test of a dye is only dependable when dealing with a straight product in comparison with a standard or type of identical composition. The presence of by-products or colors added for shading purposes will influence the results. If the conditions are favorable the figures are much more accurate than dyeings, but it is always a good plan to have dyeings made to confirm the colorimetric test, as they not only furnish something that may be kept for future reference but may show some defects that can exist apart from the mere color of the dyestuff. The colorimetric test merely shows the strength of the coloring matter but does not show level dyeing qualities, crocking, penetration, exhaust of dyebath and the many other details which are necessary features of a good dyestuff.

Dyes Suitable for Pinks

Question—What kind of a red is most suitable for making pinks?

Answer—To make a pink, a red must be exceptionally clear and bright and of a bluish shade. It should also have a high degree of fastness to light and acids and be level dyeing, for any defect in these respects will be much more noticeable in the light shades than in full shades.

Uses of Nigrosine

Question—Is Nigrosine a useful dyestuff, and for what lines of work?

Answer—Nigrosine as a dye is limited to pearl greys and slaty blues on wool and silk. The fastness to light and washing is not sufficient to meet ordinary requirements and heavier shades do not exhaust the bath and rub off quite easily. Cotton may be dyed from an alum bath but the color is very fugitive. The greys it produces on jute can be made more satisfactorily with acid blacks. With leather, however, there is no black dye equal to it in general properties. It dyes chrome leather a heavier color on the grain side than on the flesh side. It is not so easily affected by acids and alkalies as Direct Black and also resists light better. The color has no tendency to become dull and slaty but remains a brilliant black both in storage and in wear.

Mahogany Stains for Wood

Question—What is the best combination of dyes for making a Mahogany stain on birch or cherry wood?

Answer—There are two classes of water stains, a spirit stain and an oil stain, each of which calls for a different combination of dyestuffs. On account of there being now no definite standards of strength it is not possible for us to give you exact figures, but it will be easy to make a good shade with a little experimenting. Basic water stain, which is strong, but not very fast to light, is made from Bismark Brown. The straight product is often quite satisfactory for general work. Redder shades are made by adding Fuchsine, and brown shades by the addition of about 10 per cent (of the total dye) of Malachite Green. If the shade of the brown is not yellow enough, substitute Chrysoidine for part of the Bismark Brown. Acid water stain, which is faster to light, has Orange A, Amaranth and Naphthol Black as the principal ingredients. These dyes must be in their highest concentration, otherwise the salt used for reduction will lower their solubility. In this case it is not so much a matter of color as to get dyes that will separate from a strong cold solution. Often, when it can be obtained, Crocein Orange is used in preference to Orange A on account of its better solubility. Glue or dextrin can be used as a binder. As all water stains raise the grain of wood, and make sandpapering necessary before varnishing, it is preferable to use spirit or oil stains. Spirit stain. Use denatured alcohol as the solvent and add a little shellac as a binder. The dyes recommended for basic water stain will answer equally well for spirit stain providing they are in full concentration and contain no insoluble materials. Oil stain. The principal difficulty in making oil stains is in the darkening colors, as all blacks, blues, greens and violets which are soluble in benzol or gasoline are decolorized by the action of turpentine, linseed oil, Chinese wood oil or any drying oils. One way to avoid this is by using only benzol as a solvent but any subsequent varnishing will have an effect on the dye. Oil orange, oil red, Sudan brown, oil red and oil yellow are satisfactory in every respect and a darkening effect may be produced by the addition of asphaltum or Gilsonite. After any oil color a thin shellac coat is needed, so the varnish will not re-dissolve the color and destroy its drying qualities. Oil colors which are straight azo products are much superior to those which are stearates of color bases, as there is less tendency to work through the varnish.

Census of Dyestuff Industry

Section 501 of the act of Congress, dated Sept. 8, 1916, provides for the taking of a special census of the production of intermediates, dyes and other coal-tar products in the United States. The act provides: "If, at the expiration of five years from the date of the passage of this Act, the President finds that there is not being manufactured or produced within the United States as much as sixty per centum in value of the domestic consumption" of intermediates and dyes, medicinals and other finished products, "he shall by proclamation so declare, whereupon the special duties imposed by this section on such articles shall no longer be assessed, levied or collected." The President has requested the Tariff Commission to undertake the collection of information necessary for the exercise of this power.

The Commission is preparing for a systematic census of the production of all coal-tar products in a broad sense, including intermediates, dyes, medicinals, flavors, photographic chemicals and synthetic phenolic resins.

The Geological Survey has been for many years collecting statistics on the operation of coke oven plants, including production of the by-products coal-tar, benzol, toluol and napthalene. Arrangement has been made whereby duplication of work will be avoided by coöperation between the Survey and the Tariff Commission. Under this arrangement the Survey will continue to collect all the information on the operation of coke oven plants which it has been collecting in the past and in addition it will (1) distinguish between crude and refined naphthalene; (2) make an inquiry in regard to the manufacture of any intermediates at coke oven plants; (3) collect annually the statistics on the operations of gas houses:

(4) ascertain and report to the Tariff Commission confidentially, information in regard to the disposal of the materials, specified above, produced and sold by the coke ovens and gas plants. The Tariff Commission will not go directly to the coke plants or gas houses, but will secure statistics on the production of these plants from the Geological Survey. The Tariff Commission will make a detailed inquiry in regard to the development within the United States of the complex chemical industries which convert these by-products of the coke ovens into finished dyes, medicinals, photographic chemicals, flavors and synthetic phenolic resins. Over 150 firms are now engaged in the manufacture of these products within the United States.

The Tariff Commission will not make an independent inquiry in regard to the production of explosives in the United States, since other departments of the Government are following this closely. The Commission, however, will ascertain the production of intermediates derived from coal-tar and used in the making of explosives, such as diphenylamine used in the making of gun cotton for stabilizing smokeless powder. These intermediates, which are specifically mentioned in the Act, may be diverted to making dyes when the abnormal demand for explosives ceases.

Preliminary schedules, designed to aid the Commission in distinguishing between dealers and manufacturers, have been sent out, and the regular schedules calling for the condition of the industries affected during 1917 are in course of preparation. In addition to a detailed statement of the quantity and value of each intermediate and each substance classed for convenience under the general name "Coal-Tar Products," the schedule calls for data in regard to number of employees and rates of pay, research and experimental work, and amount of capital invested by each manufacturer.

The general investigation of the Commission into the chemical industries is progressing. Conferences have been held with interested specialists and with heads of other bureaus collecting information of a similar or related character, factories have been visited by agents of the Commission, the products affected have been classified, and information upon them is being compiled.

A general questionnaire designed to secure information in regard to the competitive conditions in the chemical industries will be sent out. Special emphasis will be laid on the branches of the chemical industries which have shown the most revolutionary changes during the war.

Dyestuffs and Their Names

MANY ARE CALLED AFTER NATURALIZATION IN COUNTRY.

The introduction to the British market, just at the time when the delphiniums were in bloom, so that there could be no mistaking the allusion, of "alizarine delphinol," a British equivalent to the well-known German blue dye alizarine saphirol, affords an interesting example of the renaming of dyes after naturalization in this country. Similarly, the dye indanthrene blue, long desired by our cotton dyers, has become available under the names "chloranthrene" and "duranthrene."

These are quite excellent names, with just the euphony and the suggestiveness of the true tradition, and in each instance no doubt much anxious thought has gone to find so satisfactory a solution of a delicate problem. But we are still only at the beginning of our range of indigenous dyes, and if the process of renaming is to be continued throughout it is worth while to examine the principles upon which dyes have hitherto been named and known. The further question will also arise whether it is at all necessary to invent new names for well known dyes.

An examination of the names in a comprehensive list of pre-war dyes, for example, in Prof. Green's translation of the "Systematic Survey" of Schultz and Julius is very illuminating, especially so, perhaps, to the layman, to whose fresh ear the name magenta, for example, may still bear an allusion to the battle for Italian freedom which dates the discovery of the dye. Another fact which emerges is the large number of names under which almost any single dye has been known.

Chemical Names Unsatisfactory

Some other name than the full chemical one is doubtless necessary for any dye that is intended for commercial use, for these chemical names, which indicate the constitution of the molecule, are always far too cumbrous for ordinary tongues. Therefore each firm of manufacturers has exercised the utmost ingenuity in inventing names for its own range of dyes —names that shall be striking, easily spoken, and suggestive of the nature of the dye.

Leaving on one side the few purely descriptive names, such as soluble blue, the names of dyestuffs are drawn for the most part from topographical, chemical, floral and classical sources, with a very large proportion of hybrids. Thus, following the analogy of the famous Tyrian purple, we have Biebrich scarlet and Manchester brown, though the latter, by a strange inversion, is known in Manchester even now as Bismarck brown. Naphthol yellow and naphthylamine black are common examples of chemical, phloxine and erica of floral names. A certain appropriateness can be traced in some of the names from classical mythology; thus janus blue dyes cotton and wool equally and simultaneously. Names of precious stones are also drawn upon, and there is a smaller class of purely invented names, such as ciba and immedial.

But it is in the compound words that the dyestuff names attain their full character. In this way we get thioflavine, helindone, erioglaucine, melanthrene, setopaline, diaminogne and scores such.

Clues to Its Nature

Many of the component roots in these words occur again and again in other permutations, so that an analysis of the name usually gives some clue to the nature of a dye. Thus flavanthrene indicates a yellow dye derived from anthracene. The correlated blue dye indanthrene, however, claims relationship in its first syllable with indigo, the "king of dyes." As if to prove, on the other hand, that a rose by any other name would dye (and sell) as well, one of the important German firms has chosen names such as Mikado, Zambesi and Chicago, which have no conceivable connection with color; and one may even surmise that, just as in similar domestic circumstances, the strange name has been adopted in sheer desperation of deciding between rival claims.

Having, however, settled the name of the dyestuff you are about to offer to the dyer, you will find it necessary to distinguish by means of letters or numbers the various qualities of shade and strength which you are prepared to supply. Thus "G" will indicate a green shade of blue and "R" a red shade; and it is noteworthy in some instances that the dyer, as if to escape the confusion of the multiplicity of names, has seized on these terminal letters and given them full currency value. In this way "Black BH" or even "BH" alone is recognized throughout the cotton dyeing trade, and anything more is superfluous. It is also significant that in the renaming of dyes, both before and since the war, the usual terminal letters have in most instances been adhered to.

Standardization Desirable

Naturally the name of a new dye which attains wide use during the period of its patent monopoly becomes well established, but as soon as the patent lapses the manufacture may be taken up by half a dozen firms, who will each invent a new name for approximately the same thing. The wool dye diamond black was a good instance of this. To this general rule there were very few exceptions, and to it is due much of the redundance of which we complain. When one considers that one class of dyes with generally similar properties were sold under at least sixteen group names, and that under one such name would be included, for instance, as many as fifty "brands" of black, each with its own "mark" of letters or numbers, one may complete the picture of the dyer's confusion and also realize the role of the colorist. But it is conceivable that the unification of the German firms will involve large readjustments to avoid duplication, and this would seem likely to bring with it more exact standardization of the older dyes under well established names—a simplification which would be very welcome. Many dyes may drop out altogether.

It is more certain, on the other hand, that the stream of new dyes with new names will flow again as fast as ever. We may even expect that new products will be evolved in time from our own research laboratories; and it would be excellent if we could keep our pretty names for these, and in the meantime call a spade a spade. But our manufacturers will not wish to have their products confused with their German prototypes, and from the dyer's point of view, as long as there are differences of quality between one maker's goods and another's, it will be desirable that the name should convey the difference of origin as well as the similarity of type. In the recent examples we have quoted this double object in the name has been well attained.—*Manchester Guardian*.

Aniline Dyes in South China

Consul General George E. Anderson, writing from Hongkong on the subject of aniline dyes in China, says the efforts of American manufacturers and exporters of aniline dyes, synthetic indigo, and similar products to secure the South China trade have so far been fairly successful as compared with similar business done by many of them in previous years, but all complain that the transactions have been frankly upon a temporary basis and that there is no prospect under the arrangements so far made that the trade will endure after the war.

On the other hand, Hongkong merchants complain that American manufacturers are not willing to suit their methods to the requirements of the trade here on a permanent basis and that orders to American manufacturers will continue to be of a stop-gap sort until the importers in Hongkong and China can be protected, particularly as to trade-marks and "chops," forward contracts, and future business generally.

American exporters complain that importers here are unwilling to afford them any knowledge of the ultimate buyers of their goods, while Hongkong importers indicate that until and unless their private trademark or "chop" covering the goods is protected and they can be protected against attempts to cut under them in future trade with such ultimate buyers it is idle to expect any such information.

The fact is American manufacurers do not understand the dye business as it has been carried on in the East. They do not understand how the business has been developed, how it has been financed, how important trade-marks and "chops" are, how essential it is that the trade be carried on in a continuous way and under a definite, continuous, and consistent policy, or how the system of bonuses and rebates, built up in its development, affect its further growth.

For a good many reasons the dye market in China is far different from that in the United States, where dyes can be bought in the open market on the basis of quality which may be determined by analysis. In China no such market, in the nature of the situation, can exist. The Chinese dyer, trained in the first place in the use of native dyes and vegetable indigo, must be taught, sometimes bought, and always encouraged to use foreign dyes, which he can identify in the future only by the trade-mark or "chop" under which they were introduced to him.

(*This article will be continued in the next issue of the* Reporter.)

AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

Circulating Wherever Dyestuffs are Used

Vol. I New York, December 17, 1917 No. 11

Regarding Our Policy

In the few months this publication has been in existence we have unintentionally divided our readers into two classes. This might have been expected because every policy, political platform, creed or dogma has its adherents and opponents and, the stronger its following becomes, the stronger grows the opposition. This weekly was founded because we felt that there was a real need for a publication that would reach the consumer of dyestuffs regardless of whether his field was, textile, paper, lakes, leather or stains. We guaranteed to our advertisers a definite circulation each week instead of basing our claims on a mythical paid circulation. We claimed nothing on account of past record and aimed to make our reading matter interesting on a basis of current developments rather than on the reputation of writers. We did not offer free write-ups as a bonus to new advertisers and in general made the welfare of the American Dye Industry paramount to the starring of individuals or firms. We are not in the bsiness of buying or selling dyes ourselves and may speak freely. We have no skeletons in our editorial closest but our typewriter is well oiled, has a new ribbon and the office scissors are new and sharp. Those who advertise do so because they feel that they will get results and not because they hesitate to incur our ill will and get themselves placed on our scandal list. In other words we are going to conduct an honest publication, with reliable advertisers, for the benefit of the consumer.

We hope for continued success and, as no reformer ever met with much of that commodity during his lifetime, we will not make any special attempt to reform an established business like the selling of dyes. True reform is a gradual process, the result of education and light. Its enemies are ignorance and secrecy and if in the course of time we can bring our readers to a logical conclusion by their own reasoning processes the result will be more lasting than if we thundered "Thou shalt not!" for many years.

One's friends are those we please and our enemies are those we displease. Anyone may be prouder of his enemies than of his friends, for they indicate his successes more definitely.

We have great faith in the future of the American dyestuffs and hope to see them be permitted to develop without being subjected to the conditions that held before the war. We are strong for adequate tariff protection and for patent laws that will foster the industry. We hope to see the producers united for a common cause and, with the standardization of all products, the elimination of the parasites of the business that are alike objectionable to producer and consumer.

Many extracts of letters have been published approving of our policy and it is only fair to invite those who disapprove to send in their comments also. Now is the time to prepare, before the ruinous competition returns. We have said that before and will possibly repeat it several times again and if we have the wrong idea about the needs of the industry we want to hear of it now lest we be branded as false prophets.

Of course we are wrong from the point of view of the dye gyp and we are wrong to take advertising from firms that have

not written contracts with older papers and we really ought to apologize. However, perhaps we had better wait till they say something publicly.

American Chemicals

The creation of new chemical industries here and the great expansion of old ones are subjects of comment in several of the Government's annual reports. Secretary Lane calls the growth phenomenal. Showing how the output of acids, dyestuffs, and other products, of which nearly all of our supply before the war came from Germany, has increased in the last three years, he says:

"American chemists have met the country's needs as ably and completely as did the chemists of Germany. We can go forward with every confidence that there will be no serious shortage of the many chemical products required for domestic consumption."

In its annual report the new Tariff Commission gives much space to this subject. It is making a careful survey of the industries. In a special report to Congress the results of this investigation will be set forth, with recommendations concerning a readjustment of tariff duties. The industries, says the Commission, "will have to face new conditions on the conclusion of peace. In some branches there will be surplus capacity and a probability of sharp international competition." Surplus capacity will exist where acids and other substances have been produced in great quantities for munitions. Demand for these will be cut down. But there should be no reduction of the output of chemicals, drugs, dyes, etc., now made here in place of those imported before the war.

There is evidence in the annual reports that the importance of preserving and defending the new industries hereafter, when peace conditions are restored, is clearly seen at Washington. They should be fostered not only because they have made us independent of the old foreign sources of supply, but also for the reason that their growth has involved the saving of much valuable material which we formerly threw away, at the coke ovens, smelting mills, and elsewhere. Our necessities have compelled utilization of what for many years was waste, but ought not to have been neglected. Such legislation as may be required to defend the new industries will not be effectively opposed when the time for it arrives. Consumers will know that competition in the home market is assured. They will not desire to be dependent on Germany again for chemicals.—*The Sun.*

What Made Germany the Dominating Factor In the Color Industry?

Was it those chemists who, over half a century ago, conceived the unlimited possibilities of the coal-tar industry, fostered by the government, with money, laboratories and unlimited time at their disposal? Or was it the systematic development of many branches of the coal-tar industry of which colors formed only a part? All of these were links in the circle, but the secret was unity. Could such a unity of purpose ever be established in this country?

It is safe to say that few if any chemists in the world could have done as much in such a short time, and under such trying circumstances as have American chemists. Today we are absolutely non-dependent upon Germany for the necessary basic colors and each month brings us new and encouraging developments. True, there are many of the more delicate shades yet to be perfected, but given one quarter of the time that was devoted to this industry in Europe, we will equal the world in range of colors and output.

We hope that the meeting of manufacturers in New York City during January may prove to the world that unity is possible.

National Dyestuff Association

The following companies have signified their willingness to attend the meeting of American dyestuff manufacturers to be held in New York City, January the twenty-second and twenty-third.

The Reporter will be glad to answer any questions relative to the proposed association.

Those that will attend are:

A & B Export & Import Corp., 78 Wall street, New York.

Abbott Laboratories, Chicago, Ill.

Ackerman Co., Inc., H. R., New York.

Agawam Chemical Works, Providence, R. I.

Althouse Chemical Co., Reading, Pa.

American Color and Manufacturing Co., Passaic, N. J.

Atlantic Dyestuff Co., Boston.

Atteaux & Co., F. E., Boston.

Ault & Wiborg Co., Cincinnati, Ohio.

Bay State Chemical Co., Boston.

Bayer Co., Inc., 117 Hudson St., New York.

Barnes Chemical Works, Paterson, N. J.

Barrett Company, New York.

Barrett & Co., M. L., Chicago, Ill.

Benson & Co., W. T., 164 St. James St., Montreal, Canada.

Bick & Undy, Philadelphia, Pa.

Binney & Smith Co., New York.

Bird & Co., J. A. & W., Boston.
Bloede Co., Victor G., Baltimore.
Bosson & Lane, Atlantic, Mass.
Boston Dyewood & Color Co., 136 Federal street, Boston.
Bothamley & Co., 309 Broadway, New York.
Bowring & Co., 17 Battery Place, New York.
Brown & Bro., B., 237 Water St., New York.
Cabot, Inc., Samuel, Boston.
Cambria Steel Co., Philadelphia, Pa.
Canadian Anilines & Chemicals, Ltd., Toronto, Canada.
Century Color Corp., 182 Front St., New York.
Chatfield Mfg. Co., Cincinnati, Ohio.
Chemical Co. of America, New York.
Commonwealth Color & Chemical Co., Brooklyn, N. Y.
Commonwealth Color & Chemical Co., Philadelphia.
Cosmic Aniline Works, Inc., New York.
Cronkhite Co., Boston.
Cullin, A. R., 104 S. Adams Ave., Margate, N. J.
Dana & Company, Inc., 111 Broadway, New York.
Delta Chemical Co., Inc., 11 Warren St., New York.
De Ronde & Co., A., 228 Front St., New York.
Dicks, David & Broadfoot, Inc., 302 Broadway, New York.
Dow Chemical Co., Midland, Mich.
Dunker & Perkins, Boston.
Dye Products & Chem. Co., Inc., New York.
Eastern Drug Co., 14 Fulton St., Boston.
Eavenson & Levering Co., Camden, N. J.
Eimer & Amend, New York.
Federal Dyestuffs & Chemical Corp., New York.
Fieldhouse, W. H., 176 Federal St., Boston.
Fine Colors Co., Paterson, N. J.
Fisher Chemical Co., 170 Summer street, Boston.
Ford Co., J. B., Wyandotte, Mich.
Fortner Co., L. B., 36 Strawberry St., Philadelphia.
French & Co., Samuel H., Philadelphia.
Fuerst Bros. & Co., New York.
General Chemical Co., New York.
Georgia Ochre Co., 165 Broadway, New York.
Gessler, Dudley D., Philadelphia.
Hadjopoulos & Sperco, Inc., 29 Broadway, New York.
Hartley, Frank, 146 Summer St., Boston.
Haight & Co., Samuel, 66 Batterymarch St., Boston.
Healy-Seaver Co., 90 Freeport St., Boston.
Heller & Co., B., Calumet Ave. & 40th St., Chicago, Ill.
Heller & Merz Co., H. A., Newark, N. J.
Herman & Herman, Inc., New York.
Hirsh, H. A., 68 William St., New York.
Holland Aniline Co., Holland, Mich.
Holliday-Kemp Co., New York.
Hord Color Products Co., Sandusky, Ohio.
Huisking, Chas. L., New York.
Imex Corp., 25 Beaver St., New York.
Imperial Car Cleaner Co., 115 Chestnut St., Newark, N. J.

India Alkali Works, 28-37 India Wharf, Boston.

Innis, Speiden & Co., New York.

Irridescent Dyestuff Color Co., 251 Bush St., Brooklyn.

Jacksonville Chemical Mfg. Co., Jacksonville, Florida.

Jaeck Co., Louis, New York.

Jorgensen Co., Chas. A., 55 Franklin St., New York.

Katzenbach & Bullock Co., New York.

King & Co., E. & F., Boston.

Kley, E., 40 Pine St., New York.

Klipstein & Sons Co., E. C., 644 Greenwich St., New York.

Kohnstamm & Co., H., New York.

Kuttroff, Pickhardt & Co., Inc., 128 Duane St., New York.

Lewis, John D., Providence, R. I.

Linburg, J. F., 101 Beekman St., New York.

MacAndrews & Forbes Co., New York.

MacEvoy, Thos. J., 1126 W. Ontario St., Philadelphia.

Madero Bros., Inc., New York.

Manhattan Color and Chemical Co., New York.

Manhattan Trading Corp., 2 Rector St., New York.

Marden, Orth & Hastings Corp., New York.

Martin Co., The L., New York.

May & Co., Inc., Frank L., New York.

Middlesex Aniline Co., Inc., New York.

Monroe Color and Chemical Co., Quincy, Ill.

Monsanto Chemical Works, St. Louis, Mo.

Morrill, George H., Norwood, Mass.

Morris Co., F. Ellis, Drexel Bldg., Philadelphia.

Mount Union Tanning & Extracts Co., Mount Union, Pa.

National Aniline and Chemical Co., Inc,. New York.

Nevins Co., Inc., Samuel, 109 So. 2nd St., Philadelphia.

New York Quebracho Extract Co., New York.

Newport Chemical Works, Inc., New York.

Oakes Manufacturing Co., Long Island City, N. Y.

Obex Co., Marietta, Ohio.

Organic Products Corp., Schenectady, N. Y.

Osborn Co., C. J., 132 Nassau St.

Parsell & Co., C. C., Chicago, Ill.

Peerless Color Co., Bound Brook, N. J.

Ph. Van Ommeren Corp., 42 Broadway, New York.

Read Holliday & Sons, Ltd., New York.

Reliance Aniline and Chemical Works, Providence.

Riker, Inc., J. L. & D. S., New York.

Rutherford & Co., J. G., 505 Broome St., New York.

Semet-Solvay Co., Syracuse, N. Y.

Sethness Co., Chicago, Ill.

Seydel Manufacturing Co., Jersey City, N. J.

Sherman & Mason, 211 N. Front St., Philadelphia.

Sherwin-Williams Co., Cleveland, O.

Sloan & Russell, 132 Nassau St., New York.

Smith & Co., J. Lee, New York.

Solvay Process Co., Syracuse, N. Y.

Stamford Manufacturing Co., New York.

Stanley Aniline Chemical Works, Lock Haven, Pa.

Starkweather & Williams Co., Providence, R. I.

Tower Chemical Co., Inc., 253 Broadway, New York.

U. S. Dye Extracts Co., Inc., 801 Vernon Ave., Long Islnad City, N. Y.

United Supply Company, 826 Lafayette Bldg., Philadelphia.

Waldo, E. M. & F., New York.

Western Aniline Products Co., Chicago, Ill.

White, Inc., John J., 149 Broadway, New York.

Wilckes - Martin - Wilckes Co., New York.

Williamsburg Chemical Co., Inc., Brooklyn, N. Y.

Wood, Inc., J. Early, 21 Platt St., New York.

Young Co., Frank L., Boston.

Zinsser & Co., Inc., William, 195 William St., New York.

The Size of the Reporter

A dyestuff manufacturer said to us recently, "Why do you make the REPORTER so small?"

We answered that it was made for the pocket and not to be placed on a desk to collect dust or to be used as a chair pad.

Japan As a Competitor In the Manufacture of Dyestuffs

With each passing month the ability of Japan to build up a varied chemical industry is becoming more and more evident. The same conditions favor its growth which are now stimulating so marvelously the expansion of the American chemical industry. There is the same insistent domestic demand, the same flood of inquiries from various lands, all seeking to secure supplies which hitherto have come in abundance from Europe, and more particularly from Germany.

Japanese chemists have utilized the situation quite as promptly as has been the case in this country. One branch after another has been organized and brought into effective operation. In some instances, notably in regard to the prussiates and potassium chlorate, the output has already out-distanced the local needs and the product is seeking foreign markets.

At present our domestic consumption eagerly absorbs all of the prussiates and potassium compounds which Japan can send us, and pays good, round rates for the same. There is a feeling in the Island Empire that these conditions may continue indefinitely, and that numerous other chemicals may be included in the list. This confident expectation is based largely upon the existing cheapness of manual labor, the daily wage of Japanese operatives averaging about 50 cents in gold.

It is doubtful, however, whether the Japanese chemical industry, with this unquestioned advantage, can hold its own in competition with highly organized European and American industries.

In most branches of technical chemistry, the labor cost is a minor item in the budget of a factory. The prices of raw materials, of fuel, of electric power, of transportation to markets, are controlling factors. Most of these elements of cost are quite as high for the Japanese producer as for his American competitor. He faces, in addition, an American tariff.

The natural resources of Japan are not of a character to form the foundation of a well-balanced chemical industry. Most raw materials must be imported. It is true that China, with her inexhaustible coal deposits and many other mineral and organic products, is close at hand, and at the same time, offers a market for a vast amount of chemicals and dyes.

Japanese chemists have shown great ingenuity and perseverance in securing notable quantities of potash and iodine, as well as of other substances from the kelp of the Pacific, but apart from this feature they are heavily handicapped. The metallurgical industry is but slightly developed and the coking plants are few. Any material expansion of the recently started dyestuff industry would involve dependence upon this country or other sources for the raw material.

Under these circumstances it is extremely improbable that Japan may count as a serious factor in the future of our dyestuff industry. Her chemists are still dealing with elementary problems, and are not yet as far advanced in coal-tar chemistry as were scores of American chemists when the world war broke out. They display commendable pluck and energy, and undoubtedly will create a domestic industry fairly adequate for their country's needs. When the time comes for expansion, it would seem as if China will be the natural field for their operations. The market is at their doors and presumably they will depend to a considerable extent on Chinese coal. China already consumes large quantities of artificial colors, and is, in fact, the chief consumer of synthetic indigo. With the rapid opening of the republic to modern industrial ideas and practices, its vast population will constitute, ere long, a market of enormous consumptive possibilities.

As normal trade relations return we may, therefore, witness rather an opening in Japan for much of the excess of our chemical output, than any pronounced movement in the opposite direction.

At the same time we may confidently expect that the Japanese color industry, aided by its governmental subsidy, will soon reach the point where it will effectually meet the nation's demands. There will be but a limited opportunity for dyes of American or even German make, and Japanese products may meet us competitively in the adjacent markets of the Far Orient.

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MYRON DREW REESER, Managing Editor

Consumers Look With Favor Upon American Manufacturers

The permanent establishment of a dyestuff industry in America is absolutely dependent upon the attitude of the consumer and with him rests a large part of its success.

Do the consumers of colors want American manufacturers to succeed? Are they sufficiently interested to help?

Let us show you the result of a recent letter written by the REPORTER asking the trade for an expression of their attitude regarding American manufacturers.

We reproduce the following in the hope that they may influence a spirit of better understanding between consumers and manufacturers.

We can make the dyestuffs and we are looked upon with favor by the consumer. Now, let us get together at the meeting, to be held in New York, during January and make the industry a permanent tribute to America's commercial judgment.

In reply to your letter of December 1st, in which you request us to answer certain questions about the American dyestuff industry, we wish to say that our opinion is as follows:

We think the AMERICAN DYESTUFF REPORTER is right in recommending American dyes to the textile trade, but it should be borne in mind that the American dyestuff industry has not yet produced several of the finer and high grade dyes which are necessary to the production of such specialties as sunfast and bleach-fast goods. We have every confidence that the American industry will be able to produce these finer products in time, provided they have adequate protection.

Some American manufacturers are filling orders or contracts taken regularly, with products which are equal to the samples submitted before the contracts were made. Some other manufacturers are not yet doing this.

We do not recall any marked lack of uniformity in quality in the products which we are purchasing from American manufacturers. We do not doubt that this would be found in the products of some of the less reliable concerns.

Referring to yours of recent date, we can only say that there is a great deal of credit due the few manufacturers who have undertaken to supply dyes, and these few concerns are known to the entire textile trade, as to the quality of products they are furnishing. As these firms are doing the very best they can in the bringing out of colors, etc., it does not seem to us that it is up to the users to suggest to them what they are to do next, as we are thankful to get high class colors of this kind from the American manufacturers.

We think the AMERICAN DYESTUFF REPORTER is right in recommending American-made dyes to the textile trade. We have found the domestic manufacturers capable of filling orders or contracts. The dyes purchased by us have proved uniform in quality. Black, tan and "colors" are our line, and we have no favorite upon which we would desire concentration.

We believe that the AMERICAN DYESTUFF REPORTER is right in recommending American-made dyes for the textile trade. All American dyestuff manufacturers have filled their contracts in accordance with the requirements of same, as far as our experience has been. There is a uniformity of quality in the product and we consider it equal in fastness to any dyes that we have ever had. It is true, of course, that there are some fancy shades that are not yet made, but the number of shades that are made in this country is increasing every week and all of the shades that we have had have been satisfactory. As a matter of fact, we are shipping over 7,000 pieces a week and we have not had a piece returned for any trouble with dyestuffs.

We wish to state that we do not consider ourselves authority on the dyestuffs situation and, therefore, prefer not to comment on your remarks further than to state our belief that you are correct in recommending American-made dyes to the textile trade and that with proper encouragement American manufacturers will prove capable of supplying the requirements of textile mills.

In reply to your questions pointed out in your favor of December 1st, we wish to say that it is indeed very advisable to encourage the recommending of American-made dyes to the trade in general, and, of course, the individual user will soon enough find the weak points in the material he has been getting, and in co-operating with the manufacturer of the dyes, could get matters right, in time to come.

In reply to your letter of the 1st instant, I should say that the AMERICAN DYESTUFF REPORTER was absolutely right in recommending American-made dyes to the textile trade. As far as we are concerned, our orders are being filled according to contracts. We are getting all the colors necessary for our business and find them entirely satisfactory.

We are in receipt of your letter of December 1st, relative to the dyestuff situation. We believe the American manufacturers with whom we are doing business are trying to give their customers good value under present conditions, are improving their colors all the time, and except on some fancy and particular shades we believe they are capable of making as good dyestuff as the product we have purchased from abroad in the past. The manufacturers with whom we are doing business, we believe, are making every possible effort to fill our orders, and we believe will shortly be in a position to take care of us for the contracted amounts. So far as we can ascertain the quality of the product is being kept up and is uniform.

Referring to your letter of December 1st, would say that we believe the old-established manufacturers have been very chary of doing business with the mushroom concerns who have sprung up during the last two years, and I should presume that the great majority of them have done as we have. I do not think, however, that there is any question but that your recommendation of American dyes to the textile trade is very commendable. The American manufacturers, in our experience, have been fully capable of manufacturing and filling all orders and contracts. We have had no difficulty in getting American dyes which have done our work, not particularly on the pastel shades, but on the blues, blacks, browns and greens, which all in all, have been very satisfactory, although, of course, the price has been high, something which we expect.

In reply to your inquiry of the 1st, would say that the dyes we are at present receiving from American manufacturers are very satisfactory and uniform in quality. At the present time there is no particular dye that we are in urgent need of, and have been able to obtain our requirements, but, of course, at a very high price.

The American dyes that we have been using are entirely satisfactory. All contracts have been faithfully executed. Uniformity of quality is is not exactly perfect, but satisfactory. There is a great demand for sulphur colors in blue, brown, orange, tan, in fact, most any color that was formerly supplied by Germany.

Replying to yours of December 1st, we believe that every user of dyes in this country would be only too glad to continue the use of American dye, but we cannot understand how the American manufacturers of dye can expect the users to continue to patronize them unless they make some concession in price, neither can we understand why the manufacturers would now charge 75 cents to $1.00 per pound for the dye that was manufactured and sold in this country before the European war at from 15 cents to 25 cents per pound. We use Sulphur Black only and we believe that the manufacturers with whom we contracted have done as well by us as they could in the matter of deliveries under the circumstances. Our color has been absolutely uniform.

It is our judgment that the boss dyer is the man to educate and when this has been accomplished there will be no trouble in using American dyes in quantity. The average boss dyer has so much fear of going wrong in his colors that it is a very hard matter to change from the dyes he is accustomed to use. We believe when, as you state, the unreliable concerns may be separated from those manufacturing good dyes and the good manufacturers go after the trade direct, not placing any of their material in the hands of jobbers, that the success of the American dye manufacturers will be complete.

We are in receipt of your letter of February 5th, and in reply would state that we have found domestic dyes very satisfactory. It is true that the prices are very high, but aside from this they are very satisfactory.

Tariff on Chemicals

Washington, D. C., Dec. 12.—In its first annual report submitted to Congress, the United States Tariff Commission makes some interesting observations on the chemical and dyestuff industry. In part, the Commission says:

"Among the most important problems both in times of war and of peace are those which relate to the chemical industry. The European war has caused revolutionary changes in this industry. Nearly all branches of chemical manufacture which at the beginning of the war were already well established in the United States, including such staple industries as the manufacture of soda ash, caustic soda ash, bleaching powder, have greatly expanded. Many articles not made at all before the war, or made only on a small scale, are now being produced in substantial mounts.

"The Commission is undertaking an extended survey of the chemical industry, and expects to present to Congress a detailed report showing the development of the various branches of the industry. The report will contain also a discussion of the industrial consequences of the provisions of the act of 1916 bearing on coal tar products, and of the administrative problems arising under this act. The attention of Congress may be called further to the need for some changes in the chemical schedule at large such as will make it clearer, more consistent, and more easily administered. This schedule, like others in the existing tariff system, has been little changed in its general plan and construction during the last thirty-five years, although during that period great changes have taken place in the chemical industries. Many provisions in the legislative phraselogy and in the classification are now obsolete and call for revision."

Notes of the Trade

East Durham, N. C.—The Knit-Well Hosiery Mills have been organized with an authorized capital stock of $50,000 of which $10,000 has been paid in. M. R. Strickland has been elected president and manager of the concern, and associated with him are H. H. Mullins, E. H. Avant and Theodore Clark. The company has ordered machinery and accompanying equipment to include 50 knitters for the production of hosiery, and will install a complete finishing and dyeing plant.

Charles E. Peakes, former treasurer of the F. E. Atteaux Co., dyestuffs, of Boston, has been found guilty of forgery and larceny. The vacant treasureship of the company has been filled by L. L. McLean.

The American Cellon Co., Newark, N. J., has been incorporated to manufacture chemicals and allied products. The capital is $1,000,000. Incorporators: Charles B. Copeland, Frederick N. Canfield, East Orange; Charles Hollander, Bronx, New York; John Heiss, Jr., Belleville; Anthony Rolleri, and Joseph A. Weiss, Newark.

The Walker Chemical Co., Pittsburgh, has increased its capital from $10,000 to $100,000, to provide for extensions.

The Blue Ridge Chemical Corporation, recently incorporated with a capital of $150,000, is planning for the construction of a new three-story brick plant at Rocky Mount, Va. W. C. Menefee is president.

The Nevin Chemical Co., St. Louis, has been incorporated with a capital of $200,000, to engage in a general chemical business. The incorporators are James V. Nevin, Paul Fahle, Vincent Dempsey, Michael J. and Richard C. Hart.

Dr. M. C. Kahn, well known in the chemical trade of this city and Chicago, is now manager of the heavy chemical department recently opened by the W. K. John Co., this city.

The Federal Aniline Corporation, Brooklyn, has filed notice of an increase in its capitalization from $10,000 to $25,000 for expansion.

Bonsack, Va.—The Bonsack Woolen Mills have been incorporated with a capitalization of $50,000 and the following officers: F. H. Chamberlain, president and treasurer; V. O. Stewart, vice-president; S. W. Chamberlain, secretary. This company has a plant of 1,080 spindles and 23 looms for manufacturing woolen cloth.

No Preliminaries for Conference

In a letter sent to the industry by H. G. McKerrow regarding the coming organization meeting, which, as previously noted, will be held at the Chemists' Club on Jan. 22 and 23, it is stated that those attending will be expected to discuss vital subjects affecting the industry, such as the tariff, arbitration of disputes, standardization of colors, etc. No preliminary organization has been attempted, and the ultimate developments will be entirely at the disposal of the conferees.

INQUIRY DEPARTMENT

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department, for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Bismark Brown for Leather

Question—How is Bismark Brown applied to leather and what is the best color to shade it for the production of tobacco shades?

Answer—Bismark Brown may be dyed direct on vegetable tanned leathers, from a bath containing a small amount of Acetic Acid, at a temperature of not over 120° F. As the dye is altered by loss of its acidity, soap liquors are to be avoided and the fat liquoring is best done with egg yolk and neatsfoot oil. Chrome tanned leather requires a mordant for a basic dye. Tanners prefer Fustic for browns instead of Sumac as there is less tendency to crack the grain. Bismark Brown is readily changed to tobacco shades by the use of Methylene Blue. There is not a great demand for this brown on shoe leathers but it is used on skivers for hat sweat bands, glove leathers and upholstery leather.

Navy Blues on Wool

Question—Certain acid Navy Blue I have been using has a tendency to dye very uneven and as soon as I add acid all the color goes on the wool in a few seconds, so that no amount of boiling will cause them to become even again. Can you suggest any remedy?

Answer—These characteristics seem to mark the products as belonging to the class of Sulphoncyanine. The group comprises a large number of dark blues and blacks of various manufacturers. They may be dyed evenly from a bath containing Acetate of Ammonia, which slowly liberates acid during boiling. Sometimes they dye well without any addition to the dyebath and after exhaust some Acetic Acid may be added. Some of these blues will also dye from a bath containing Bichromate of Soda and yield colors nearly as fast as Alizarines. As they are closely related to the Direct Cotton colors the addition of Glauber Salt tends to make the bath exhaust quickly rather than retard the dyeing as in the case of acid dyes.

Chrome Black

Question—In dyeing Chrome Blacks I use Acetic Acid and Glauber Salt and when the bath is nearly exhausted I add about 2 per cent of Sulphuric Acid to get a clean exhaust. In the same bath I add 2 per cent of Bichromate of Soda and boil one-half hour but the black is always of a plum color although I have seen laboratory tests of the same product which were brilliant jet shades. Can you suggest any improvement in the method?

Answer—While all Chrome Blacks have their full color developed by chroming they are generally unable to withstand the action of an excess of Chromic Acid. If the bath is difficult to exhaust it is better to add still more Acetic Acid or, best of all, Formic Acid. There are few Chrome Blacks which, in a 7 per cent dyeing, are not fully developed by three-fourths per cent of Bichromate. Any excess of Bichromate exerts a stripping action and reddens the color. This action is particularly noticeable when the chroming is not regular and some parts of the wool get an excess at the expense of other parts.

A Statement

The American Dyestuff Reporter is not a house organ but is defiantly non-partisan.

It is supported absolutely by advertising.

Exact circulation is 3,500 copies, reaching the man who actually buys dyestuffs and allied products for the textile, paper, paint, leather and printing ink trades.

Will you help us to make it an authority on the subject of dyestuffs?

Contributed articles of interest that are helpful to the industry will be appreciated.

—*Editor.*

Chinese Rug Dyeing

American lovers of Oriental rugs are becoming increasingly familiar with the products of Chinese looms. The methods of dyeing the yarn used in these rugs are exceedingly primitive, but the colors obtained are exceptionally fast.

The wool that enters into Chinese carpets is grown in Mongolia, and the yarn is spun by old men and idle women in the border villages. Each spinner strolls about with a wad of raw wool and a hand spindle, and accumulates a ball of yarn by a mechanical twirling of the spindle while entering vigorously into the gossip of the day. As no shuttle is used in the weaving of the carpets, so there is no wheel used in the spinning of the yarn. The Chinese rug is most literally hand-made.

The Ninghsia dyes never fade, but gain in lustre as they age. A twenty-four-year-old carpet, far from being worn out, has a silky brilliance and gloss which cannot be imitated. The native dyes used in Peking, when properly set, will outlast the carpet, and nothing has yet been discovered in China which will bleach the rug without ruining the carpet, if the dyer has done his work conscientiously. Actual experiment has shown that it is possible to boil a new rug to shreds without extracting the dye out of the yarn.

Each rug maker does his own dyeing to match the colors in the design submitted to him. At one dyeing he makes enough to finish the carpets, so that there can be no possible variation in shade, and he has his whole supply of the various colors dyed, set and dried, ready for the client's inspection before he sets his men to work on the loom. Minerals are rarely used. Their blue is indigo; the locust tree, which also yields black; brown comes from a kind of acorn husk; purple from hollyhocks; and yellows, reds, greens and other shades from various native woods, mostly cheap and abundant.

The dyer takes as much dyewood or seed as his judgment prompts him to use, throws it into a great pot of boiling water, and when the liquid takes on color throws in the yarn, and sets a man to stir it. The fixing of the colors is done with alum. A rug made partly with yarn dyed with the native vegetable dyes and partly with aniline dyes fades in streaks and patches, and betrays itself in a few months, but the colors in a well-dyed Peking rug temper evenly and bear any amount of washing. Strong soap and water have no more effect on a good rug than they have upon a good handkerchief, and often make a surprising difference in the ornamental qualities of a carpet that appears hopelessly old and dirty.

The recent carpet boom has made the Chinese carpet an article of trade, and has given it the status of a useful and ornamental floor covering. The successful buyers in the carpet centres have worked hard to impress their ideas upon the native artists, with the result that the Chinese are developing a perception of color and arrangement as the foreigner sees them, and are relegating their old patterns to the dust-bins.—*The Dyer and Calico Printer.*

Aniline Dyes in South China

(*Continued from last week*)

There is no prejudice against American dyes. Most first now in the business are British, and usually they prefer to handle British products. At the present time, however, British products in many lines are not to be had, and in any event American dyes are acceptable and popular as any other unknown dyes—and practically all of the dyes on the market at the present time are unknown compared with the German products imported before the war. An American representative of an American dye concern working in this market has sold well toward half a million dollars' worth of American dyes and, until competition from Europe comes, will doubtless sell more. The trade here is reaching out for such products, and under normal conditions American-made dyes, when of proper quality, will have as good a chance in this field as any other dyes.

American manufacturers, however, have so far not been disposed or able to meet the terms under which Chinese users of dyes are accustomed to buy their materials, and the indications are that only by a complete grasp of the situation, viewed on a large scale, will American exporters permanently succeed in the business. The trade is so large and the American manufacturer's opportunity is so exceptional at this time that it is folly to consider the trade upon any other than a permanent basis. The fact is that the dye trade in the Far East (as measured by that of South China, at least) is one requiring large capital, thorough organization, and patient use of the highest merchandising ability.

Complete and definite figures as to the volume of the trade in Hongkong and South China are not to be had, for no Hongkong returns are available and a considerable portion of the trade was carried on with districts other than those included in the Chinese customs returns. Figures obtained from commercial sources place the quantity of aniline dyes sold in the Hongkong field in 1911 at 12,850,000 ounces, valued at about $225,000 Hongkong currency; in 1912, 14,500,000 ounces, valued at $433,000; and in 1913, 18,800,000 ounces, valued at $540,000 Hongkong currency. The sales of synthetic indigo in 1911 amounted to about 9000 piculs (picul=133⅓ lbs.), valued at about $485,000 Hongkong currency; in 1912, to 8,860 piculs, valued at about $449,000; and in 1913, to 21,400 piculs, valued at about $1,128,000. These three years were the last years of normal trade. [The U. S. Treasury exchange value for the Hongkong dollar was about $0.42 in 1911; from $0.43 to $0.49 in 1912, and from $0.47 to $0.50 in 1913.]

In a general way, therefore, it may be said that the annual value of this trade in the Hongkong field is around a million dollars gold in normal years. For all China the trade in aniline dyes and artificial indigo in 1913 reached $3,961,962 and $7,038,237 gold, respectively, or a total of $11,000,199. These imports were credited almost entirely to Germany and Belgium. The trade in fact was German trade.

The secret of German success lay as much in the German plan of merchandising as in scientific and economical methods of manufacture. There were several primary arangements upon which all the German factories based their trade. One was the maintenance of large stocks of dyes on the spot—not only in large centers like Hongkong and Shanghai, but in all the principal cities and dye centers of China as well. A second was a system of sales on commission, i. e., the factory carried the stocks and risks, tided over all fluctuations in prices, bad seasons, and the like. Another was financial aid to dyeing establishments such as the large dye establishments the Chinese maintain in various centers for dyeing goods on a large scale. Still another was a graduated system of rebates on sales granted all agents in the shape of bonuses on quantities consumed; and, lastly, a general system of propaganda work, including not only advertising, but the service of trained dyers and demonstrators and the like. This whole system was carried on by the factory, by the exporter. The dealer in Hongkong was in reality only an agent selling on commission.

The crux of the entire system was the maintenance of large stocks on hand—an arrangement that meant the locking up of considerable capital. How large the stocks of these dyes kept in China have been may be deduced from the fact that when the war in Europe broke out and the import of dyes from Germany ceased China at once began to re-export the stocks of dyes on hand.

In 1914 China imported aniline dyes to the value of $2,225,121 gold and re-exported them to the value of $24,188. In 1915 China imported aniline dyes to the value of $291,960 and re-exported them to the value of $1,759,737. In 1916 the imports were valued at $387,390 gold and the re-exports at $1,690,840. Imports of artificial indigo in 1914 were valued at $6,955,758 gold and re-exports at $16,561. In 1915 the imports were valued at $2,568,261 and the re-exports at $3,985,762 gold. In 1916 the imports were valued at $340,821 gold and the re-exports at $374,969 gold.

Accordingly there must have been on hand in China at the beginning of the war enough of a stock of aniline dyes and synthetic indigo to enable China to supply its own wants since that time (upon a restricted scale, of course) and export surplus stock to the value of over $4,000,000 gold, to which the stock on hand in Hongkong at the time should be added.

Are you receiving the Reporter regularly each week? If not, will you please send us the name of your company and full address?

AMERICAN
DYESTUFF REPORTER

A Weekly Publication devoted to
DYESTUFFS, COLORS and ALLIED CHEMICALS
Circulating Wherever Dyestuffs are Used

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Removing the Methyl Group

Two weeks ago we called attention to the menace that threatened the Aniline Dye industry by the commandeering of the Toluol supply by the Government. Now, a disaster of possibly greater importance has appeared in the past week. All the Methyl Alcohol (Wood Alcohol) is to be reserved for Government use and its products are only to be made and sold subject to the usual restrictions covering necessary materials for established businesses.

The Government, of course, has a perfect right to do this in the interest of the nation's welfare and is open to no criticism, however much it may inconvenience the sundry manufacturing interests of the country.

Toluol or Mono-Methyl-Benzene was the first means of adding Methyl groups in the building up of certain organic compounds and the diversion of this important raw material for war purposes is a great drawback to the development of the dye industry.

Another series of compounds derived their Methyl groups from Di-Methyl Aniline which is made from Aniline and Methyl Alcohol.

Now, this class of colors is threatened with temporary extinction. The derivatives of Toluol were numerous among our early American products and include principally the compounds made from Toluidine, Tolidine and Metatoluylenediamine. This range covers a great number of Basic, Acid and Direct dyes for which there are no available substitutes, derived from other raw materials.

The line of colors derived from Di-Methyl Aniline, of which Methyl Alcohol is one of the raw materials, is equally large. The principal consumption today is in the manufacture of Methyl Violet. While the colors made from Micheler's ketone (a combination of Di-Methyl Aniline and Phosgene) are numerous and valuable, their manufacture in this country has not yet attained such large proportions, although in a healthy state of development.

There is still another fairly abundant source of Methyl groups, namely, Acetone, or properly Di-Methyl-Acetone. Being more expensive, volatile and less abundant it has not been used to the same extent and a change in processes would involve sending much of the present apparatus to the scrap pile. Even then, should the more involved reactions be used, and Acetone be made the raw material for our Methyl groups we would always remember that it is also one of the solvents mentioned in the patent specifications as being used in the making of smokeless powder.

The prospect then is that the dyestuff manufacturers must feel at all times that while they have a chance to develop and get ready for the competition after the war, they are in constant danger of having their plants closed by being denied the necessary raw materials.

Let us look away from the dye industry for a time and study the farmer. The farmer lives in the country generally because he enjoys it, he raises crops and stock because he makes money out of them, and at the end of a year has enjoyed good living and puts a substantial balance in the bank. He sends his sons, who desire to follow his line of industry, to a State Agricultural College so that their

earnings and efficiency may be increased. He receives from Washington bulletins that tell him how to combat his difficulties and knows that if he has a rubbish pile somewhere on the farm he can collect some of it in a box and, because he and his sons have notes, his Congressman will send it to the Department of Agriculture where they put a half-dozen experts at work on it for six months. Then, a new bulletin will be published telling of the properties of rubbish piles and their utility as a soil for some new crop.

If the dyestuff makers were given even a thought, some research could have been carried out whereby we would know more about the available materials and perhaps it would be shown that the powder makers could use Acetone and the dye makers allowed to have their Methyl Alcohol. The munition makers might be shown how to use Picric Acid safely and leave some Toluol for dye purposes.

Heretofore, the interests of the industry were championed at Washington by a very small delegation and at the same time there was an equally strong opposition. The hearings before the Ways and Means Committee were farces, and what little concession was obtained did little to foster the industry, while the patent laws and custom evasions exerted their counteracting influence.

Possibly by now everyone who is connected with American dye manufacturing has decided that they will unite with their fellow manufacturers for mutual protection, but that is not enough. This paper reaches directly the consumer of dyes and it is their moral support which is greatly needed.

In past years some of the strongest opposition to the dye and chemical schedule in the tariff bills came from large textile manufacturers. These same gentlemen also had Alizarine Blues, which were on the free list sold to them under the German "Convention Price" which was four or five times as high as the selling price of twenty years ago.

The consumer must come to realize that he will get better treatment from his domestic manufacturers and just as good dyes if they are given half a chance. Competition will prevent too high prices and it is only where some monopoly exists that there is danger of an overcharge.

When the dye interests are as carefully looked after as the farming interests and we have a Bureau of Dyes and, if not whole State Colleges, at least a department devoted to applied chemistry in each, conducted in a practical manner, we may look forward to progress, and not until then.

As such things are only possible when demanded by a large interest, our first step is to show the country at large that this industry is now a real factor and has earned recognition. It is not a mushroom growth that has come up over night and may be knocked down by the first blow. It is a part of our national system and is necessary in both peace and war. It is destined to utilize our natural resources for the production of more valuable products while giving employment to many. Who can predict what American inventions will be developed when our chemists have a chance and a square deal?

And now, is no one going to protest against having the whole development checked by denying it the necessary raw materials just because nobody seems to know what else to do?

Complete Resumé of Inquiry Department

In a previous issue of the REPORTER, we published a complete list of the questions asked our Chemist by consumers of colors. These inquiries were in regard to perplexing problems of process, etc.

They were arranged in numerical order and it was suggested to our readers that they ask us for the answer to any particular inquiry or inquiries that interested them.

The prompt answering of the many letters which this suggestion evoked has proven quite a task and for this reason we now publish in full all of the inquiries received to date with the answers to same.

We suggest that you carefully preserve this issue for future reference.

Red Stain Impervious to Water

Question—Can you inform me how I can obtain a red stain soluble in alcohol which will be impervious to water. I wish to use it in refinishing leather goods and will use a small amount of shellac in the liquid?

Answer—There are a few oil soluble reds of American manufacture on the market and these are generally soluble in alcohol, but in case you cannot obtain just what you want you can take a strong solution of Fast Red A in water and add just enough of a basic red like Fuchsine or Safranine to exactly precipitate the acid color. The end point may be determined by dropping a drop of the liquid on filter paper; at the beginning the Fast Red will form a ring outside the sediment or precipitate and if too much basic color is present it will form the ring, but when the precipitation is sharp the precipitate will have only clear water surrounding it. The precipitate is collected and when drained free of water will dissolve in alcohol and not be soluble in water. Blue shades can be made by using Methyl Violet with the basic red and yellower shades by using Chrysoidine. This method was used successfully five years ago and can easily be repeated with the dyes now available.

Indigotine or Indigo?

Question—Several dyers have told me that they prefer Indigotine from natural indigo to that made from pure synthetic indio. It is this only prejudice, or is there a reason?

Answer—From a chemist's point of view the synthetic product is really superior, as it is purer. The dyer prefers the natural because it works better, *i. e.*, dyes slower and more level. The reason is simple—the small amount of impurities present in the natural product somewhat retard the dyeing and the slower the dyestuff is absorbed the more it penetrates and the more level is the shade.

Nigrosine Test On Wool

Question—How is Nigrosine tested by dyeing on wool? The best results we have been able to obtain are all thin greys and blues which wash out and rub.

Answer—A wool dyeing is worthless as a test for the strength of Nigrosine because the dye has little affinity for the fibre while any acid dyes added for shading purposes have their full affinity. Tests may be made by colorimetric methods or a small batch of paper pulp colored and fixed with alum and made into a sheet will give a comparison. Chrome tanned leather may also be dyed, but unless the samples are finished under identical conditions the results will be misleading.

Bismark Brown for Leather

Question—How is Bismark Brown applied to leather and what is the best color to shade it for the production of tobacco shades?

Answer—Bismark Brown may be dyed direct on vegetable tanned leathers, from a bath containing a small amount of Acetic Acid, at a temperature of not over 120 degrees F. As the dye is altered by loss of its acidity, soap liquors are to be avoided and the fat liquoring is best done with egg yolk and neatsfoot oil. Chrome tanned leather requires a mordant for a basic dye. Tanners prefer Fustic for browns instead of Sumac, as there is less tendency to crack the grain. Bismark Brown is readily changed to tobacco shades by the use of Methylene Blue. There is not a great demand for this brown on shoe leathers, but it is used on skivers for hat sweat bands, glove leathers and upholstery leather.

Application of Aniline Salt Black

Question—Would it not be possible to use Aniline Salt black on goods that were to be coated heavily with finish for book covers, and what is the best way of applying it?

Answer—It is well that you suggest a fabric that is not likely to require fastness to either washing or rubbing (as the finish protects it) for the old one-dip black can never be made fast to either of these influences, although the oxidized and steamed varieties would be satisfactory. While Aniline Black can be dyed in one bath on grey cotton, better results are obtained by dyeing it on a bottom of a direct blue or black. The dyebath is set with 2½ lbs. of Aniline Salt, 3 lbs. Bichromate of Soda and 3 lbs. Sulphuric Acid per 100 lbs. of goods. The cotton is worked for one hour cold, then for 15 minutes at 120 F. After dyeing, a good rinsing and soaping follows. The lack is full and bloomy, but does not stand washing very well; yet, under a heavy finish would make a cheap, fast black for the purpose mentioned.

What is Rhodamine Substitute?

Question—What is Rhodamine Substitute and who makes it?

Answer—This is not a dyestuff in good standing, but one of the makeshifts of the wily brokers. Several products of this name have come to our attention, one being simply reduced Safranine. Another was Phloxine and another had no resemblance to Rhodamine except in the shade of the powder. There is a dyestuff which would be more than worthy of the name if it were not really better in some respects; namely, Xylene Red, made by Sandoz of Basle. This is an acid dye about half the strength of Rhodamine B (single), which dyes very level and is quite fast to light and matches Rhodamine B in shade. Some lots of it have been offered lately, but we cannot say whether it is a pre-war remnant or is still being made in Switzerland.

Dyes for Jute Burlap

Question—What are the best dyes for Jute burlap that are obtainable at the present time?

Answer—The most common colors for jute are the basic dyes, of which a fairly large line is obtainable at present. They are dyed from a hot but not boiling bath containing alum. The greater number of direct cotton colors are also used, but the shades are not so brilliant. The best colors, however, are such acid dyes as will dye vegetable fibres from an alum bath. Fast red gives a better red on jute than any other class of dyestuff. Azo Yellow, Wool Orange, Metanil Yellow are excellent. We cannot now obtain Soluble Blue to use alone and with the yellow for greens, but it is likely that some will soon be on the market.

Fast Red for Cotton Flags

Question—What is the fast bright red that is being used on the cotton flags?

Answer—Practically all of the cotton flags one sees at present are not dyed but printed. Nearly all of the red color is Para Red. This is not sold as a finished dyestuff but in the form of intermediates. The cloth is first printed with a preparation of Beta Naphthol and Caustic Soda and dried in the dark, then run through a bath containing Paranitraniline diazotized by the action of Nitrite of Soda and acid, when the color develops instantly. There is plenty of these products on the market, but dyers seldom use them, the bulk going to printers of calico and color lace makers.

To Stain White Cotton

Question—Which class of dyestuff is most suitable for staining white cotton to resemble Egyptian cotton or to make lace an ecru shade?

Answer—The most practical way of arriving at this result without any danger of unevenness, which is the greatest trouble with most dyes, is to use instead of coal-tar products an extract made from Chicory or Coffee essence. This has been used by the French lace makers for a long time and the results are both fast to washing and free from streaks.

Sediment in Sodium Sulphide

Question—What is the black sediment that settles out of a solution of concentrated Sodium Sulphide, and will it have any effect on a dyeing made in a bath containing it?

Answer—The sediment is most finely divided Carbon and is devoid of any chemical action whatever. Even with the lighter sulphur colors it does no harm, as it does not adhere to the fibre but washes out quite readily.

Process for Congo Red

Question—What is the best way to dye Congo Red and have the shade remain bright for a reasonable length of time?

Answer—Congo Red is so sensitive to acids that even the carbonic acid of the air has a dulling effect on it, and the sulphurous acid from burning gas, coal, etc., turns it to a blue black very quickly. No permanent remedy has ever been devised, but if a dryer is forced to use it because he can get nothing else, it is customary to dye with soda and soap or Turkey Red Oil and whizz or wring without washing. The alkaline matter left in the cotton acts as a protector for a time, but as soon as the acids have broken down this defense the color darkens as usual. Dyeings which have darkened may be restored for a time by enclosing in a box containing ammonia vapor. In our opinion Congo Red has no place in a dyehouse, it has historic interest and is a laboratory asset, but cotton dyed with it is as good as spoiled and will be a source of trouble and argument.

Colorimetric Tests vs. Dyeings

Question—Is a colorimetric test of a dyestuff to be depended upon in all cases or is a dyeing better?

Answer—A colorimetric test of a dye is only dependable when dealing with a straight product is comparison with a standard or type of identical composition. The presence of by-products or colors added for shading purposes will influence the results. If the conditions are favorable the figures are much more accurate than dyeings, but it is always a good plan to have dyeings made to confirm the colorimetric test, as they not only furnish something that may be kept for future reference, but may show some defects that can exist apart from the mere color of the dyestuff. The colorimetric test merely shows the strength of the coloring matter, but does not show level dyeing qualities, crocking, penetration, exhaust of dyebath and the many other details which are necessary features of a good dyestuff.

Dyes Suitable for Pinks

Question—What kind of a red is most suitable for making pinks?

Answer—To make a pink, a red must be exceptionally clear and bright and of a bluish shade. It should also have a high degree of fastness to light and acids and be level dyeing, for any defect in these respects will be much more noticeable in the light shades than in full shades.

Uses of Nigrosine

Question—Is Nigrosine a useful dyestuff, and for what lines of work?

Answer—Nigrosine as a dye is limited to pearl greys and slaty blues on wool and silk. The fastness to light and washing is not sufficient to meet ordinary requirements and heavier shades do not exhaust the bath and rub off quite easily. Cotton may be dyed from an alum bath but the color is very fugitive. The greys it produces on jute can be made more satisfactorily with acid blacks. With leather, however, there is no black dye equal to it in general properties. It dyes chrome leather a heavier color on the grain side than on the flesh side. It is not so easily affected by acide and alkalies as Direct Black and also resists light better. The color has no tendency to become dull and slaty but remains a brilliant black both in storage and in wear.

Malachite Green and Scarcity of Oxalic Acid

Question—Why is the Malachite Green now being offered by American manufacturers a bronzy powder, while the old German types were all in flat greenish crystals.

Answer—There is no difference in the color base itself but in the dye salt which forms the finished product. The old type was the double Oxalate of Malachite Green base and Zinc, while the present product is generally the Hydrochloride of Malachite Green base. The scarcity of Oxalic acid accounts for our not seeing more of the older variety, but as the solubility is superior there is little doubt that in time the crystals will make their appearance on the market again. In case the powder gives any difficulty in dissolving (through partial loss of its acid) it is necessary to add a little Acetic acid to the solution but insolubility on account of tarry impurities cannot be corrected in this way.

Action of Turkey Red Oil in the Dye Bath

Question—What is the action of Turkey Red Oil in the dyebath of direct colors and why would ordinary soap not do as well?

Answer—Turkey Red Oil being Sulphonated Castor Oil which has been neutralized with soda and ammonia is closely related to the true soaps but yet has some very distinct properties. When soaps are partly neutralized by contact with acid materials there is an immediate tendency for the fatty acid to separate, while in the case of a sulphonated oil as emulsion results. The emulsifying power of the sulphonated oils is much greater at all times than soap and a particularly powerful action is exerted on the waxy matters of cotton as well as on the gum of silk, this in itself gives the effect of a clean fibre for the dye to combine with. Then all water from natural sources contains lime and magnesia which form insoluble lakes with dyestuffs and waxy soaps with the ordinary soaps. Although the quantity may be small, the effect is a loss of color and brilliancy. The sulphonated oils, on the other hand, form with the earthy bases colloidal substances which remain in emulsified form and the affinity is so great that the dye is left free from their influence. Since the dye is allowed to come into close contact with the fibre a heavier shade is produced; further, the colloidal matter hs a restraining influence on the process and promotes level dyeing. Finally, the slight amount of oily matter is absorbed by the fibre and gives a brightening effect. The total of these effects produces a result which makes the use of Turkey Red Oil advisable, but as with all good things an excess must be avoided, as the gummy feel and strong odor is likely to over-balance the good effect. It is always safe to use 2 per cent of a 50 per cent oil in the dyebath and with sulphur dyes this may be doubled.

Government Requirements on Khaki and Drab

Question—What are the United States Government's requirements for the dye of Olive Drab or Khaki on uniform cloths?

Answer—Since the beginning of the war the two most severe requirements have been dropped, viz., 24 hours in strong Lactic Acid and 10% Citric Acid. Formerly, these two tests eliminated even Alizarine Reds and gave a practical monopoly to two reds of German manufacture which were necessary in making the required shade. Now, the only tests the samples must stand are 10 minutes at a boil in 80 grains of Oleine soap and 10 minutes at a boil in 10 grains Carbonate of Soda to a pint of water. In all cases the samples must stand as well as the standard sample furnished by the Quartermaster. In addition, there is a light test of 30 days in the weather, but as this is uncertain at this time of year, a 48-hour Ultra Violet Ray exposure is considered an equivalent in some departments. The full specifications will be furnished by the various Quartermasters Departments, if applied for by those interested in filling contracts.

(*Continued on page* 9)

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Dexter W. Hewitt, President
A. P. Howes, Vice President
Elisha Hewitt, Secretary and Treasurer

Myron Drew Reeser, Managing Editor

A Commercial Duty

What is your duty to America and how are you acquitting yourself as a unit in the army of manufacturers upon whom will fall the task of preserving and extending the commercial activities of the land? You have willingly contributed your money and you are making sacrifices that her honor might be maintained and her shores unmolested. What are you doing to preserve her commercial honor and to protect her from molestation by foreign commerce?

The manufacturer of dyestuffs is approached by an individual agent, or agent of an established company, and is guaranteed a steady output of a particular color for a certain period. They pay the price asked and the manufacturer feels safe in the knowledge of a certain consumption and looks into the future with the hope of a substantial return on the money he expended in experimental research. Does this attitude of indifference speak well for the future and is the consumer protected as he should be? Does he feel that you are personally helping him through the difficulties he may encounter? The answer is, *he does not,* and just as soon as the head of the dye house can obtain the dyestuffs formerly used by him, his patronage of American manufacturers will cease and again will the market be monopolized and controlled by outside influences.

The manufacturer can control this, and it is vital that he realize at once that his attitude, in not regarding the opinion of the consumer, is the best help to those who will again enter the field and who now look upon this carelessness as an asset in their contemplated efforts.

Understand, we do not say that the quality of American-made dyestuffs is not high or the range limited, for such a statement would be far from the truth. We do say that the consumer must be reached directly by the manufacturer and the sale of his products absolutely controlled by his own selling force and not through questionable agents.

Who Is to Blame?

In conversation a few days ago with the manufacturer of a certain color now much in demand, we were informed that this color was sold direct to a company, "known as manufacturers," and was in turn sold by them at a reduction of thirty cents a pound. Where does the manufacturer stand in this transaction? What is the opinion of the consumer? Does the user of such dyestuffs feel that he is protected by the manufacturer? The consumers of the products of American manufacturers judge actual achievements by the quality of the products, and when these products are not up to standard, what is their opinion?

A dealer in dyestuffs said to us recently: If I were a manufacturer, I would rather sell one-third of the output now obtained in this way and feel that my company was looked upon with favor by the consumer than know in my heart that my efforts and achievements were not contributing to the commercial prosperity of my country.

Service

Personally we cannot see how an American manufacturer can ever hope to make a success of his part in this industry when he is so neglectful of the importance of service. When one knows something of the service that the consumers were educated to by foreign manufacturers and realizes that they expect just as much at the hands of the American manufacturer, the fact of service is of just as much importance as quality and uniformity.

In speaking with the managers of the dye houses of several large companies near this city, we heard little or no complaint of quality, but much criticism regarding the interruption of supply. This is to be expected in the building of a new industry, but is it entirely due to the difficulties of equipment or is it due to the many channels through which the finished product reaches the consumer.

The manufacturers are, in the majority of cases, conscientious and eager to make this industry permanent, but does this same apply to those through whom they sell their products?

Today the future of this industry is not dependent so much upon the efforts of the manufacturer as upon the opinion of the consumer. This is the key to the permanency and success of this enterprise, and why do American manufacturers place this key in the hands of others?

Remember that each of us owes a duty to America and that service to her, whether in the field of battle or the pursuit of commerce, that duty should be foremost in our thoughts and evident in each effort.

Let us join together to eliminate certain discouraging practices, and when we sell dyestuffs to dealers let us sell them to those who are known to be reliable.

A Complete Resume of Inquiry Department

(*Continued from page* 7)

Fast Navy Blue on Cotton

Question—What dyes are at present available for producing fast Navy Blue on cotton?

Answer—The only dye that will answer all requirements is vat dyed Indigo, using the synthetic or natural products, both of which are scarce at present but with hope of greater supply in the near future. The scarcity and extremely high price of the remnants of German vat blues makes their use for heavy shades impractical at present. The same may be said of Sulphur Blues, although there has been some talk of American makers offering them in a few months. While there are at present no developing blues of American make it is expected to soon have the type generally known as Blue B.H., which when developed with Beta Naphthol gives a full rich navy blue fast to everything but Chlorine and light. Gallocyanine, which is sold as Alizarine Blue for wool and is used for navy goods, is capable of being used on cotton, but is better adapted to printing than to dyeing. The chrome mordant may be applied to cotton by the Koechlin method but if the chrome mordant is not well fixed there is no hope of obtaining a fast dyeing afterward. If facilities are at hand to pad the goods with Chromium Acetate solution, then steam at about 5 lbs. pressure and wash well in a weak Sal Soda, they may be dyed in a neutral bath and we will obtain a fast navy blue. The depth of the blue depends on the amount of Chromium Hydroxide fixed on the cotton and the fastness will depend on the fixation of the mordant in the fibre. If the mordant is only precipitated on the surface of the fibres it will both crack and wash off but if there is a proper union of mordant and fibre the dyeing will be fast.

Navy Blues on Wool

Question—Certain acid Navy Blue I have been using has a tendency to dye very uneven and as soon as I add acid all the color goes on the wool in a few seconds, so that no amount of boiling will cause them to become even again. Can you suggest any remedy?

Answer—These characteristics seem to mark the products as belonging to the class of Sulphoncyanine. The group comprises a large number of dark blues and blacks of various manufacturers. They may be dyed evenly from a bath containing Acetate of Ammonia, which slowly liberates acid during boiling. Sometimes they dye well without any addition to the dyebath and after exhaust some Acetic Acid may be added. Some of these blues will also dye from a bath containing Bichromate of Soda and yield colors nearly as fast as Alizarines. As they are closely related to the Direct Cotton colors the addition of Glauber Salt tends to make the bath exhaust quickly rather than retard the dyeing as in the case of acid dyes.

Mahogany Stains for Wood

Question—What is the best combination of dyes for making a Mahogany stain on birch or cherry wood?

Answer—There are two classes of water stains, a spirit stain and an oil stain, each of which calls for a different combination of dyestuffs. On account of there being now no definite standards of strength it is not possible for us to give you exact figures, but it will be easy to make a good shade with a little experimenting. Basic water stain, which is strong, but not very fast to light, is made from Bismark Brown. The straight product is often quite satisfactory for general work. Redder shades are made by adding Fuchsine, and brown shades by the addition of about 10 per cent (of the total dye) of Malachite Green. If the shade of the brown is not yellow enough, substitute Chrysoidine for part of the Bismark Brown. Acid water stain, which is faster to light, has Orange A, Amaranth and Naphthol Black as the principal ingredients. These dyes must be in their highest concentration, otherwise the salt used for reduction will lower their solubility. In this case it is not so much a matter of color as to get dyes that will separate from a strong cold solution. Often, when it can be obtained, Crocein Orange is used in preference to Orange A on account of its better solubility. Glue or dextrin can be used as a binder. As all water stains raise the grain of wood, and make sandpapering necessary before varnishing, it is preferable to use spirit or oil stains. Spirit stain. Use denatured alcohol as the solvent and add a little shellac as a binder. The dyes recommended for basic water stain will answer equally well for spirit stain providing they are in full concentration and contain no insoluble materials. Oil stain. The principal difficulty in making oil stains is in the darkening colors, as all blacks, blues, greens and violets which are soluble in benzol or gasoline are decolorized by the action of turpentine, linseed oil, Chinese wood oil or any drying oils. One way to avoid this is by using only benzol as a solvent but any subsequent varnishing will have an effect on the dye. Oil orange, oil red, Sudan brown, oil red and oil yellow are satisfactory in every respect and a darkening effect may be produced by the addition of asphaltum or Gilsonite. After any oil color a thin shellac coat is needed, so the varnish will not re-dissolve the color and destroy its drying qualities. Oil colors which are straight azo products are much superior to those which are stearates of color basis, as there is less tendency to work through the varnish.

Dye For Candy Manufacturers

Question—What are the best dyes to sell to a candy manufacturer which will be bright and yet non-poisonous?

Answer—While there are a great many dyestuffs that would answer the purpose, it is illegal to sell or use any except the eight that are permitted by the Bureau of Chemistry, Department of Agriculture. Even the use of the permitted colors is restricted to highly purified grades that have been certified after a test at Washington. The purification of such of these dyes as are at present obtainable is a matter of care and expense, but if you seriously intend taking up this branch of the business we suggest that you write the Superintendent of Documents at Washington for full information.

What Is a Union Dye?

Question—While there are many direct cotton dyes being made, we hear very little of union colors. What is the nature of a union dye and how do they differ from direct cotton dyes?

Answer—The union dye is first of all a direct cotton dye which just happens to produce the same shade of both wool and cotton. The number of colors that would do this of themselves was always very small for most required a careful regulation of temperature and generally dyed the wool several shades redder than the cotton. To correct this deficiency it was customary to add a small amount of neutral-dyeing wool color that would make the two fibres dye about the same shade, but at present there is a lack of the necessary neutral dyes and though most of the direct colors on the market dye unions fairly well, it is not so easy to get a solid shade on mixed goods. The dyeing of unions is therefore put up to the dyer himself and not much is said of ready-made union colors.

Use of Bichromate of Soda

Question—I have some dyeing recipes that call for the use of bichromate of potash, but as this is now so high in price and as I was told that bichromate of soda could be used instead, I would like to know how much of the latter to use to get the same effect, and is there any difference in the working of the two substances?

Answer—As bichromate of potash is free from water and bichromate of soda contains water, the percentage of chromic acid being higher in the soda salt, the problem would seem to require some calculation beyond the average consumer. Practically one so nearly balances the other that for all technical and manufacturing purposes no change in proportions is ever made. As the chromic acid, which is the active ingredient, is exactly the same in both, no difference is to be expected or has ever been observed. The soda salt, however, is deliquescent or hygroscopic, and when mixed with sulphuric acid forms a more soluble sulphate than potash and does not deposit crystals.

Chrome Black

Question—In dyeing Chrome Blacks I use Acetic Acid and Glauber Salt and when the bath is nearly exhausted I add about 2 per cent of Sulphuric Acid to get a clean exhaust. In the same bath I add 2 per cent of Bichromate of Soda and boil one-half hour, but the black is always of a plum color, although I have seen laborator tests of the same product which were brilliant jet shades. Can you suggest any improvement in the method?

Answer—While all Chrome Blacks have their full color developed by chroming they are generally unable to withstand the action of an excess of Chromic Acid. If the bath is difficult to exhaust it is better to add still more Acetic Acid or, best of all, Formic Acid. There are few Chrome Blacks which, in a 7 per cent dyeing, are not fully developed by three-fourths per cent of Bichromate. Any excess of Bichromate exerts a stripping action and reddens the color. This action is particularly noticeable when the chroming is not regular and some parts of the wool get an excess at the expense of other parts.

Insoluble Matter in Fuchsine

Question—What is the cause of the insoluble matter and dull shades of some lots of American made Fuchsine?

Answer—Most of the American Fuchsine is made by the old process and in the course of heating the batch conditions sometimes become favorable for the formation of both Nigrosine or Induline bases and Phosphine. Other complicated bases result and form tarry matters which resist solution and prevent even the true Rosaniline base from dissolving in the proper manner. The New Fuchsine process (Formaldehyde process) on the other hand, overcomes most of these difficulties and the result is a product much superior in solubility, crystallization and brilliant shade. The manufacture of Rosaniline base by the New Fuchsine process not only improves the Fuchsine crystals but, when used for Alkali blue, Soluble blue, Cotton blue, Spirit blue, etc., gives a better line of products throughout the series.

Methods in Use Before Introduction of Vat Colors

Question—What was the fastest dyestuff of simple dyeing process before the introduction of the vat colors?

Answer—Among the cotton dyes this position was probably occupied by only one product, a yellow made by the Clayton Aniline Co., of England, named Chlorophenine, a Primuline derivative.

This dye was a direct color of a shade like Chrysophenine but absolutely fast to acids, alkalies, washing, light and chlorine bleach. Among the wool dyes the most notable were the Alizarine Sapphirols, Bayer, sold in America under the names S. A. P., S. A. E. and S. K. Y. They were dyed as acid colors and notable for both fastness and even dyeing qualities. When American manufacturers reach such dyes we will have good cause to be proud of their attainments.

Methods for Silk Dyeing

Question—What method or methods would you advise in the dyeing of silk?

Answer—There are a number of different methods and are as follows:

First Method—A dye bath is made with boiled-off liquor, to which is added a little sulphuric acid, to make the bath slightly acid, together with the required amount of dyestuffs. This bath is started lukewarm and is gradually heated up to the boil. As a rule the bath will be exhausted of color. The silk is then taken out, rinsed and is passed into a weak acetic bath to brighten it. The dyebath may be used again for further lots. Where boiled-off silk is being dyed the bath may be made with Glauber's salt in place of boiled-off liquor. This method is applicable to all acid and azo dyes.

Second Method—The dye bath is made with clean water, to which a little acetic acid is added, or boiled-off liquor broken with acetic acid is used. Start the dyeing at a lukewarm heat, work up to the boil, then rinse, brighten in an acetic acid bath, and dry. This method is available for the cosine range of dies.

Third Method—A dye bath is made with the dyestuff and ¼ oz. of soda ash or borax per gallon of liquor. Work the silk in this at the boil for an hour, lift and pass into a bath of ¼ oz. sulphuric acid per gallon of water to raise the color, then dry. This method is applicable to the alkali blues and violets.

Fourth Method—Prepare the dye bath with 1½ ozs. soap and 1 dram of soap per gallon of liquor, with the necessary amount of dye stuff. Start the dyeing at a lukewarm heat, then raise nearly to the boil and work to shade, rinse and dry. This method is very useful for direct colors.

Fifth Method—Add a little acetic acid (1½ ozs. to one gallon) to the dye bath, start at a lukewarm heat and work up to the boil, rinse and dry. This method is applicable to all those direct dyes which are able to resist a weak acid.

Sixth Method—Dye in a bath with a little acetic acid, or use a boiled-off liquor bath broken with acetic acid. Stare lukewarm, heat up to the boil, rinse and brighten with acetic acid. This method may be followed with such dyes as benzoazurine and brilliant azurine, which can be dyed in an acid bath and are fast to acids.

Seventh Method—Use a plain water bath starting lukewarm and finishing at the boil, or a boiled-up liquor bath broken with a little acetic acid may be used. After dyeing brighten in the cold with acetic acid. This method is used with all basic dyes.

NOTES OF THE TRADE

The capital stock of the Lake Shore Chemical Co., Akron, Ohio, has been increased from $100,000 to $400,000.

Officers of the Keyser Chemical Co., Roanoke, Va., were decided at the recent meeting of stockholders as follows: W. L. Andrews, president; R. H. Angell, vice-president; E. L. Keyser, secretary. These, with the following, comprise the board of directors: John M. Hart, E. B. Freeman, H. E. Hogan, W. H. Bourne, R. D. Phelps, James B. Botts and H. H. Markley.

The firm of Fred Wetzel & Co., Inc., has been organized with a capital of $10,000, by Fred Wetzel, of Clifton, N. J., to deal in dyestuffs, chemicals and olive oil soaps. The warehouse and laboratory is in Clifton, but the main office it at 12 Park Row, New York City. Mr. Wetzel, as well as being active manager, is secretary and treasurer of the company.

The Bayer Co., Inc., of Rensselaer (N. J.), manufacturers of chemicals and dyestuffs, has contracted with the Selley Express Co. to ship important consignments of goods from the company's plant at Rensselaer to New York by automobile trucks. This action was necessitated by the congested traffic on the railroads. The several new buildings of the company in Riverside avenue, which have been in course of construction for several months, are nearing completion and the firm plans to occupy them on Jan. 1.

The General Chemical Co., New York, has awarded a contract for the construction of a new one-story addition to its laboratory at Laurel Hill, Long Island, to cost about $8,000. Leddy & Moore, New York, are the contractors.

The National Aniline & Chemical Co., Buffalo, N. Y., has filed plans for the erection of two new three-story additions to its plant, about 39 x 121 ft. each. Contract has been awarded to J. W. Cowper Co., Inc., Buffalo.

The States Metal Co., Philmont, N. Y., manufacturing chemicals, will, according to a recent announcement, move its plant from Binghamton to Mellenville, near Philmont, N. Y. The concern will locate in the old Wellington Mill property, acquired of G. W. I. Landau.

The Grasselli Chemical Corp. has signed a lease for offices in the new Equitable Trust Co. Building at Forty-fifth street and Madison avenue, this city, and expects to establish its new offices late in April or early in May. The move is made both to allow an extension of office space and to secure a more central location.

The E. I. duPont deNemours Co., Harrison (N. J.) works, has announced that effective January 1, 1918, it will discontinue the sale of acids and chemical products through the National Oil & Supply Co., and will establish a branch office to handle this department at 272-78 Passaic street, Newark, N. J.

The co-partnership of the Swiss Products Co., dyestuffs and chemicals, New York, has been dissolved, and Ch. Toepfer withdrawn. To succeed it, the Swiss Products Trading Co. has been incorporated, under the laws of New York, principally to do an import and export trade in dyes and chemicals, H. J. Simon is president and L. Geismar is vice-president of the new company; the latter will be the active manager of the concern.

The Block Chemical Works, Newark, N. J., manufacturers of chemicals, have acquired the plant and property of the Berkeley Brick Co., Berkeley Heights, N. J., for a consideration said to be $25,000, to be used as an extension to its plant.

According to advices from Mexico, the Treasury Department of that country has prohibited the export of coal-tar and natural and artificial vegetable dyes.

The Trans-Atlantic Chemical Corporation, New York, has awarded a contract for the construction of two new factory buildings at Elizabeth avenue and Style street, Linden, N. J. The W. H. Nye Co., Inc., New York, is the contractor.

The British Government has taken control of supplies of nitrate of soda and tightened restrictions on the export of sulphate of ammonia.

The Lloyd Chemical Works, dye manufacturers, Belleville, N. J., are installing new equipment, but quick completion of this work is reported to be delayed by slow delivery of motors.

Germans Back Company Making Explosive for U. S.

Washington, Dec. 20.—An investigation of the quality of the trinitrotuluol supplied to the Government, it is expected, will be included in the inquiry of the War Department by the Senate Military Affairs Committee. Reports of government explosive experts disclose that the contracts call for an article only 80 per cent pure, whereas the military experts declare that almost absolute purity is essential if the ammunition with which American troops are being supplied is to be wholly effective.

A large producing concern in Pittsburgh recently installed machinery for the production of toluol, and investigation is now said to reveal that 20 per cent of the stock of this concern which made the apparatus is owned by the Deutche Bank, while other Germans are among the stockholders.

This fact in itself might have excited no suspicion had it not been discovered that in the preliminary trials of the machinery an immense quantity of the invaluable chemical was permitted to run to waste. The government, it is declared by an authority whose information has been turned over to the Department of Justice, has contented itself with buying toluol from brokers instead of making it or supervising its manufacture.

These facts are being laid before the Senate committee.—*Tribune.*

Status of Dye Industry and Cotton Dyeing

Charles R. Delaney, Hanover, Pa.

So much heated discussion has taken place in the last year or so in connection with the dye industry, and so much general misinformation of a startling nature has reached the eye and ear of a more or less interested public that it seems as though it were about time for some one that actually has had the necessary experience to know what he is talking about, to say something about our industry. In times past—in recent times—that is—everybody has heard some extraordinarily illuminating statements from a few sources which we can roughly define as first, middlemen; secondly, departmental employes, and thirdly and by far the most retiring and least vociferous, the bona fide manufacturer, and in this last group which represents actually the man that knows what he is talking about, you have heard very, very few, and in the—before the war at least—most important American branch of the dyestuff industry—namely, that of the natural dyestuff manufacturers, you have heard nothing. Why is this? I assume that for the same reason that you were not interested in the statements of the manufacturers of the steel that went into your boilers, nor the metals of which your looms were composed—yet cut off the makers of steel from your plants and how quickly your interest would rise. So it has been with your dyestuffs. How little interest has been shown in the one class of manufacturers who actually kept your dyeing industry running when you found that the foreign dye makers were prevented from supplying you. And when in a panic over the rumors from the German controlled aniline industry to whom did you go? To the natural dyewood extract makers if you were fortunate, and, if you were not, then to the distributors who had contracted with the extract makers for whatever part of the output they had had sufficient foresight to secure.

Natural Dye Makers Sought For

Did you ever stop to think for a moment why it was that the natural dyestuff makers were able to supply the demand when so suddenly called on? Their plants were operating, and had been operating for years supplying other branches of the industry that required good, cheap color, and it was a simple matter for them—provided they had the necessary stocks on hand of raw materials—to greatly increase the output of blues, yellows and blacks, and their various compound shades, and this was done, and to the credit of a few of the big manufacturers and the everlasting shame of some others who were carried away by their feverish desire to emulate the German artificial color houses in the grasping after excessive profits—the usual trade was protected and deliveries were made by the genuine manufacturers exactly on schedule and at reasonable prices.

The whole thing simmers down in the mind of the manufacturer of dyes to this. Do the American people with their tremendous inventive ingenuity seek to protect the imitators of the Germans because of a fancied need, or do they, when their attention is brought to it, desire to give this protection to American manufacturers of absolutely American materials which have always been made here and made better than anywhere in the world?

Natural Dyestuffs Old

There is a tree that grows in the South known as the Black Oak, and from this tree we have made a concentrated yellow dyestuff from 1869 to this very day—and because of the superiority of this yellow dyestuff our largest customers before this great war were the Germans and the Swiss color makers. When George Washington was a boy, we—the United States, long before Perkins invented artificial madder—had a dyestuff industry which has been in operation continuously to this present time, always making natural dyestuffs, and it was this natural dyestuff industry in which millions of dollars were invested that kept your dye houses running when the Germans tried to force you to supply raw cotton to them to make explosives that would now be used to tear your sons and brothers into pulp in exchange for their artificial dyes so largely a product also of their high explosive works.

(*This article will be continued in the next issue of the Reporter.*)

AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

Circulating Wherever Dyestuffs are Used

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Dyestuff Irregularities

Consumers of dyestuffs no longer show reluctance in the use of American made dyes, but despite their efforts to encourage the new industry have many trials that tax their loyalty severely. It is very difficult to obtain a constant supply of absolutely uniform products. Sometimes the shade varies, sometimes the strength and often the solubility. Having lately passed through a series of transactions with the vampires of the dye trade—the gyps of the past years, they are at times inclined to accuse their supply houses of practicing the same tactics. We feel that this is unfair and the consumer should understand some of the reasons for the lack of uniformity and help to relieve the situation by being as considerate as possible.

It hardly needs to be re-stated that throughout the country everything is hurry and bustle, that is, until the railroad is reached. After the shipment is made the winds of chance are not more fickle.

Since raw materials are the most bulky and least expensive, they are naturally the ones that suffer most.

In the early days of the war it was possible to obtain the raw materials in a state of absolute chemical purity. To-day a strictly chemically pure raw material is almost a rarity, when bought on the open market, and many of the deliveries on contracts fall below the absolute standard. In ordinary matters, materials a few per cent below standard are not objectionable and an allowance can usually be made by way of adjustment. In organic chemistry, however, the presence of an impurity may give rise to a series of objectionable by-products that cannot easily be separated, and by the time the manufacture of an intermediate has gone through several stages the contamination has reached a considerable quantity. If this state of affairs would remain constant a proper allowance could be made and a system of purification devised at some stage of the manufacture.

Unfortunately the delivery which was expected may be tied up in a freight yard, somewhere in America, and the supply necessary to keep the factory in operation must be purchased from another source. Usually this other source is a spot offering of a broker who can make quick delivery. The result is that a new impurity is probably present and the final product is now wrong again, but in a different way.

Theoretically all the materials can be purified, but practically our new dye chemists are trying to make several colors, their intermediates, and tend to a number of things instead of concentrating on one.

Uniform finished dyestuffs are only possible when made from uniform intermediate products, and these require even more skill and purer raw materials than the dyes themselves. Before the war we could make excellent dyes in this country from imported intermediates, but to-day we are producing all the steps from the crude tar to the finished dyes.

We dislike to hear the sneer that accompanies the statement that "Germany certainly produced the best chemists." There is no use explaining here how ten chemists covered the tasks that are expected in America from one or how a man working along one line all his life

would naturally learn a few things that would make him a leader in this one line. When a person has an opportunity to slowly study an industry over a period of forty years it is unreasonable to expect a novice, crowded with many responsibilities, and under obligation to turn out a stipulated tonnage, to equal the record in three years' time.

You all know America's record in the line of invention, and yet the record of America's chemical achievements is generally forgotten just because we did very little in dye invention before the war. We did little because the American dye chemist was looked upon as a joke. The factories that were running were manned by the hyphenated variety of American who would only allow those of their own race in the buildings. None of the colleges or universities taught or could teach anything but the mere rudiments of dye making, so it is no wonder that we made no progress along those lines.

The achievements of to-day are great, and if it were generally known what obstacles have been overcome the daily press would make news features of them.

In any other line of industry a steady uniform supply of raw materials and tools are necessary to maintain a constant output of a uniform product, and dye manufacture is no exception.

To expect a well-trained chemist with inventive ability, alert mind and inexhaustible energy to do as well as the Germans did before the war, is like expecting a billiard expert to equal the record with three china eggs.

Between the freight congestion, the quality of raw materials and the commandeering of supplies by the Government, the task of maintaining uniformity is not easy.

We suggest that consumers suspend judgment and give the new dye makers the benefit of the doubt for the time being. There are many ways by which they can learn the quality of the goods, and if a slight adjustment of working formula will permit them to use a certain lot, it is far better for the national welfare than to throw it back on the manufacturer.

In the meantime the dyestuff makers and dealers are taking steps toward a system of standardization which shall be just and fair to all, and it is hoped that by concerted effort it will be possible to straighten out some of the tangles and greatly improve relations between producer and consumer.

Standardizing Clothing and Limiting the Use of Many Fabrics

Fancy Stripes and Colors to be Barred

Washington, December 30.—To release labor and materials for war work, reduce the cost of living and free large sums for investment in war bonds and thrift stamps, the committee on commercial economies of the War Industries Board is mapping out a radical scheme for standardizing clothing and the fabrics that enter therein.

If the present plan becomes effective there will be in the near future:

But three colors in shoes—black and two shades of tan.

No more high shoes of the style prevailing the last few seasons. Instead, the standard summer shoe will be the Oxford, or low cut, and the winter shoe for men and women will be of medium cut, extending just above the ankle.

But three colors in men's fabrics—black, a gray and an indigo blue.

But one grade of silk—a fabric to sell at about 60 cents a yard in standard colors yet to be decided upon. The committee has found that a wearable silk of good quality can be manufactured at this price. England is using a similar plan.

Standard neckwear for men, styles and colors to be limited. Now there are scores of styles and thousands of colors and styles of fabric.

No more fancy shirts for men. Instead, standard weaves, limited in number.

Standard cuts and styles of clothes for men.

Standard candies, instead of the innumerable assortments now made and sold in limited number.

The investigations of the committee show that, by standardizing these and other products of common use, the labor supply of the country will be increased not less than 10 per cent, while the saving in materials will run into the tens of millions, and at the same time greatly relieve pressure on industries needed at full capacity on war work.

The making of colored shirts, for example, is said to require an immense amount of dyestuffs and other chemicals needed in war. The same is true of colored shoes.

The standardizing of styles and fabrics, the committee believes, will be a material contribution toward reducing the high cost of living, first by reducing the cost of manufacture, and secondly, by forcing the elimination of substitutes and adulterations, which cost the consuming public uncounted millions. Thus, in the matter of shoes, a great many of the fancy articles now sold at prices undreamed of a few years ago, contain less real leather than one would find in a child's shoe of a few years ago.

The plan to standardize candy manufacture is considered an answer to those who would stop candy manufacture altogether because of the sugar shortage. The committee believes the people need sweets—that has been the experience of all of the countries at war. But the committee sees no reason for forty kinds of chocolates, or a dozen kinds of lemon drops.—*Tribune*.

Status of Dye Industry and Cotton Dyeing

(*Continued from last issue*)

I desire to show you that you should place your trust more in the manufacturers who have been continually bringing their products to the highest possible standard of quality and producing materials here superior in every way to those manufactured abroad of the same kind. There have been natural dyestuff plants in Great Britain, France, Germany, Switzerland and Italy long before the war, yet our foreign business steadily expanded for the sole reason that the United States made better natural dyestuffs than these other countries did, and if they did send over anilines and fiercely endeavor to wrest every trace of the dyestuff industry away from us in their unholy desire to keep up the manufacture of munitions of war at any cost, yet nevertheless in spite of this and the lack of any adequate tariff protection we held our own and annually increased our outputs.

Natural Dyes Stimulated

Have we American makers of natural dyestuffs been content with our products, or content to feebly imitate our foreign competitors or whine because the foreign patents on certain materials kept us from imitating other men's brains through our lack of them? Not much! Why the very shortage of foreign colors has been the greatest stimulus to the United States manufacturers possible, and I am exceedingly glad to announce that without consulting any of the famous press bureau experts in order to ask for a certificate of merit we have developed a method of manufacture of dyewood extracts for dyeing cotton and union goods, and this includes cotton and wool, cotton and silk, and ordinary shoddy, that will be revolutionary in its relation to the dyeing industry. This actually means that we have at last been able to produce upon a preliminary scale a method of dyeing for natural colors, which was very largely the only particular advantage that the majority of the artificial colors enjoy, and as soon as we have developed this upon the large scale and are ready to place it upon the market we shall bring it most vigorously and prominently to your attention through the recognized publicity channels.

(*This article appeared in a recent issue of the "Textile World Journal."*)

INQUIRY DEPARTMENT

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department, for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Mordant Dye Grouping

Question—Some chrome colors work as well on a chrome mordant as when dyed from an acid bath and after chromed, but this does not seem to be a general rule. Can you give an explanation?

Answer—For a dye to be a mordant dye it is necessary to have a certain grouping of its molecules. There must be two —O—H groups in the Ortho position, then it will combine with a chrome mordant and form an insoluble compound in the fibre during boiling. Some dyes like Alizarine or chrome yellow and the true Alizarines have such a group. The yellows and some reds will dye with acid or on chrome while the Alizarines dye only on the mordant. The other class, however, require to be oxidized before the —O—H groups are set free. In their first condition they are only acid dyestuffs but the after-chroming both oxidizes and mordants them and produces both a change in color and fastness.

Sampling Dyestuffs

Question—I have had test dyeings made of the enclosed Direct Blue by outside parties, because I obtained such variable results, and now one dyeing is at least twice as strong as another of the same percentage. The baths always exhaust and no difference seems to be found if either slightly alkaline or acid. What becomes of the color in the weak dyeings?

Answer—The sample in question is composed of a concentrated Direct Blue in small bronzy granules reduced about 50% with fine salt. If the sample is put in a small bottle, so it can be observed, and tapped lightly on a table a few times you will notice that the salt works to the top and the concentrated dye goes to the bottom. This shows what may happen to a keg of the same dye while being carried over the city streets on a truck or to a sample envelope in the mail. We suggest a careful re-mixing of the entire lot and after sampling taking care that there is no further separation before testing. This same condition has been the cause of many controversies in dye tests and generally is to be found in mixtures or reduced dyes where one of the ingredients is in fine granular form. The essential for a test of any kind is a representative sample and, if the sample differs in any way from the lot sampled, an inaccurate test may be expected.

Navy Blue on Cotton

Question—I wish to dye a heavy Navy Blue on cotton yarn. The yarn is intended for upholstery goods and need not be fast to washing, but must be full and bright. None of the Direct Blues give me the brightness I need and whatever basic blues I have used are either uneven dyeing or crack in heavy shades.

Answer—Long ago, when the first aniline dyes were very expensive, the dyers aimed to use them mostly for topping their old-fashioned shades and now, in times of scarcity, we can often find many things of present interest in their old methods. Navy Blues can be made by preparing a tannin mordant, not with stainless sumac or tannic acid, but with dark colored sumac extract, preferably

Myrabolans extract, when it can be had. Instead of Antimony use Iron Liquor and the mordant will be of a dark grey color. On this dark colored bottom dye Methylene Blue, shaded redder, as necessary, with Methyl Violet. There is no difficulty in getting both depth and brilliancy, and on account of the smaller amount of dye in proportion to the mordant the color will be quite fast. There are also Indoine Blues now made. These dye more evenly from a bath containing Alum and Acetic Acid than they do on a regular Tannin-Antimony mordant and give full bright Navy Blues suitable for your purpose.

Primuline Deterioration

Question—What condition will cause a pure Primuline to develop into a dirty bluish red?

Answer—Generally the reason for this is the presence of Alpha Naphthol in the Beta Naphthol used in developing.

Columbia Black or Direct E Black Extra?

Question—Has Columbia Black FF any advantages over Direct Deep Black E extra or the American Direct Blacks of the same nature?

Answer—Columbia Black FF has the peculiar property of shading redder in the fuller shades. A pale grey dyed with it may match the Bayer or American Black but in a full black it is much redder and when a certain point is passed becomes a regular bronze color. On the other hand, it is faster to acids and is more reliable for pearls and greys as they do not change shade so readily. Columbia Black FF is well adapted to union goods in cases where the amount of cotton is small, while in cases where the cotton is in excess the danger is great of having it either too thin or else bronzy in tone.

Du Ponts Purchase Chicago River Frontage

In spite of large headlines in the daily papers as to the establishment of a big dye plant by the Du Pont Co. in Chicago, careful inquiry fails to confirm the report, at least as to any immediate action. The facts are that the E. I. Du Pont de Nemours Company has acquired title from Harrison Brothers & Co. to a tract of land, 300 by 170 feet, at the southeast corner of Mendell street and McLean Avenue, the deed naming a nominal consideration. The Harrison company now occupies several buildings on the property with its business. This property has about three hundred feet frontage on the Chicago river and is an ideal warehouse or factory location.

For several months there have been current reports to the effect that the parent corporation intended to construct a large dye manufacturing plant in this city, but no confirmation could be obtained from Mr. Fred Henderson, Chicago representative of Harrison's, Inc., who stated, however, that in all probability the property involved would eventually be improved with several new buildings for Harrison, Inc., but plans for the improvements are still in an indefinite state and it is not known just what the new buildings will comprise. He also stated that as far as he knew no plans are contemplated for the construction of a factory for the manufacture of dyes.

—*Paint, Oil and Drug Review.*

Federal Dyestuff Difficulties

According to the Boston News Bureau, default in interest in $2,000,000 Federal Dyestuff and Chemical Corporation 6 per cent. notes on Dec. 1 allows 30 days' grace for the two note holders' committees, controlling 85 per cent. of notes, to accept offer of representatives of Canadian Munitions Commission to operate Kingsport plant on rental basis of $20,000 monthly. Canadians demand that 51 per cent. of Federal Dyestuff stock be held in escrow for stated period of years, title to revert to them if successful in operating Kingsport plant.

Color Standardization in the Economy of Textiles

E. J. Redding of the Textile Color Card Association

At this particular time when our country is directing every effort to the conservation of man-power and materials, more attention should be paid to the economies to be effected by the use of standard colors. Judging by past standards the textile and allied trades of this country are today in a very fair shape so far as colors are concerned, but we must become more nearly perfect to obtain a greater degree of efficiency than has ever before been maintained either in this country or Europe, to help insure an early and successful termination of the war. Manufacturers of the more expensive fabrics catering as they do to a fashionable and wealthy public have felt that by putting out a wide range of shades they stimulated sales, for only in so doing could they hope to anticipate every whim and caprice of their patrons. A manufacturer in producing a fabric in a wide range of shades hoped but seldom expected to sell all of these shades, but was merely endeavoring to provide himself with those shades which the public would demand. What became of the unsalable shades, certain fabrics in the lighter colors could be re-dyed, thereby burdening the fabric with an excessive cost-wasting material and man-power, and such fabric after being re-dyed was invariably of inferior quality and commanded a lower selling price. Certain other fabrics could not be re-dyed, sometimes they were foisted on the public by means of a low selling price, often they were carried over for a season or more in the hope that the public taste would change, but invariably these, too, were sold at a great sacrifice.

In normal times it is possible to produce a wide range of shades, but with our present reduced supply of labor, materials and supplies it behooves us to produce most efficiently. The present conditions permit us to manufacture only such goods as will be absorbed in the coming season.

We know that in the woolen industry there is a shortage of both wool and machinery; even if we could secure an additional supply of wool so many of our looms are running on government work that we could supply but a small percentage of the normal civilian demand. This would seem to offer a particular opportunity for other industries, particularly the silk, to supply a very large part of women's dress goods apparel.

(*Continued on page* 9)

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Regarding Editorial Camouflage

Now comes the time of year when many trade papers bedeck themselves in a cloak of editorial camouflage and sallie forth in quest of advertising.

Certain editorials that were published during the year are now reproduced. The issue throbs with the intensity of its interest in you and your prosperity, *but* did you ever read an editorial that appeared at this time of the year which did not mention the name of the trade paper at least three times on every page? We all should be truly sorry for those editors who value so lightly the reasoning capabilities of their readers.

Allow
Me to
Extend to you
Royal greetings this new year and to say that
In the years to come I cannot
Conceive of anything finer than
An alliance of American Dye Manufacturers who
Need never fear the arms of trade from over the seas and . . .

May the true spirit of American Brotherhood
Assert itself in this industry and
Destroy the petty jealousies that hinder progress—and
Erect in America a permanent bulwark of endeavor, wholly.

Devoted to the upholding of true Americanism which
Yields not to the tinkle of easy-made gold and
Ever thru the grinding progress of the years be known for
Service, one to the other, and all for America.

—EDITOR

Many objects are attainable at this time if one would care to presume upon the spirit of the season. The refusal of certain Teutonic peace offers is proof of what one may expect if the reasoning power of the people is underestimated.

You cannot establish a trade paper on a pedestal of irreproachable conduct just by extending the season's good wishes.

The maintenance of any trade paper is dependent upon the revenue derived from its advertising pages, but you cannot make advertising the paramount issue.

In the past, too much attention has been paid to obtaining advertising and not enough to editorial policy and service.

This year has seen many mistakes in the careless placing of advertising and now as we enter the new year, this subject should receive very careful attention. When you do place advertising for the new year, make sure that the circulation is as represented. Remember that advertising is not a loss and consequently should be placed with utmost care and thought. The editorial strength of one particular issue is a poor guide by which to sum up a publication's editorial policy. If a trade paper is not wholly devoted to the interest of its readers no amount of editorial camouflage will enable it to survive.

One of the main objects of the proposed affiliation of American dyestuff manufacturers is the standardization of products. A manufacturer must meet the standard of the association before his product is recognized by them. Let us hope that before many months we may see a standardization of trade papers. When a trade paper says that it has such and such a circulation, let the association or each individual company demand actual proof. The future of the dyestuff industry is dependent upon coöperation. Coöperation is dependent upon the honesty of each manufacturer, consumer and every trade paper.

Color Standardization in the Economy of Textiles

(*Continued from page 7*)

We know that in some of the European countries the so-called luxury industries have been discouraged. We know that in this country, if our coal situation becomes acute, some of our less essential industries may be curtailed to give preference to others engaged in government work; some of our mills that might be affected are the sole support of entire towns and in one instance of a large city. We can avoid such a condition by exercising care in what we manufacture and in certain industries what we manufacture is largely a matter of what colors we manufacture.

Standardization of colors will do much to put our less essential industries on a firm basis, a basis that will enable them to be ot economic value to the country by supplying fabrics to take the place of those being absorbed by the government and will prevent a loss and waste that would result were such industries to be suspended.

Prior to the war, American manufacturing conditions differed from those in Europe, Europe with its cheap labor was enabled to manufacture smaller quantities and wide varieties, this condition encouraged a wide color range and our manufactures, working under different conditions, felt called upon to duplicate such a color range, but now, due partly to changing conditions and partly to American initiative, our manufacturers are in a position to conduct their business along different lines.

In considering the economic advantages of standardized colors, it is to be remembered that it applies to manufacturers of textiles, manufacturers of garments and consuming public alike.

For color purposes it is possible to divide the spectrum into approximately three thousand shades. Now, let us consider two extremes; suppose manufacturers run one thousand shades, of course, there could be no standardization, each manufacturer will produce those shades that he thinks best, each retailer will purchase those shades which he thinks best, no two departments of a department store will carry the same shades. Even in a very staple color like navy blue, one manufacturer's conception of navy will have a greenish cast and another manufacturer's conception will have a purple cast, and it will be very difficult for a woman purchasing dress-goods materials to match the shade in the various accessories. Now, let us consider the other extreme; first, a line of about one hundred staple shades that never change, supplementing this, each season, a small line of most promising novelty shades, the season's indications also include those staple shades which promise best for the particular season, this would mean a line of but a few dozen shades each season. With our manufacturer confining himself to the same shades it would be possible then for the various department buyers of a store to purchase the same shades, the public would be able to match colors in all departments and the store would have less stock of unsalable colors to be sacrificed at the end of each season.

The garment trade is similar to the retail trade, with the fabric manufacturer running a thousand shades the garment man must purchase from a different manufacturer according to the colors he wants, in many cases he will have difficulty in matching one of those colors in accessories and some times, after going to considerable expense to match a shade in accessories, the fabric manufacturer may discontinue the difficult shade and the accessories will be valueless.

The greatest need of the retailer today, so far as some fabric departments are concerned, is a more compact stock, a smaller number of shades should be carried, far better to lose an occasional small sale than to risk a considerable loss for the sake of making a big display of colors.

There have been successful textile manufacturers who have had a "different" line of colors and who have felt that their success was due to that different line of colors, but a study of such colors leads one to the conclusion that their success was not as a result of their color range, but rather in spite of their color range, for it must be remembered that in a long run a manufacturer's success can but parallel his customer's success and his customer cannot successfully handle a color that cannot be duplicated in other fabrics.

The question arises how can colors best be standardized; the answer is furnished by the growing adoption of a standard color card in the United States. This card which originated shortly after the war in Europe was established with a view to accomplish the economies I have outlined.

The work of selecting colors is being continued by a committee of textile experts representing the various branches of the industry. The element of co-operation is one of its important features, the suggestions and forecasts of this committee improves the entire field of textiles.

A great saving could be made by a thorough study of the color proposition in the economy of textiles, this saving will affect every process of production, every purchase of finished material, every step in distribution and conserve material. It will simplify the labor question, save wasted energy and release idle capital. Its benefits will accrue to every one concerned with textiles. In the final analysis it will be a factor in furthering our national aims and as such well worthy of the attention of all you gentlemen.

The British Coal-Tar Industry and Its Difficulties in Time of War

C. M. Whittaker, B.Sc.

In giving a paper on the British coal-tar color industry, it is always necessary to explain at the outset that the present national circumstances prevent one entering into details which would be most interesting and illustrative of the present situation. These facts, which may not at present be given, will no doubt be given in due course, when they will redound to the credit of the British industry.

The British industry, founded by the discovery of Sir William Perkin in 1856, experienced a period of great prosperity in its early days, which was followed by a decline for a number of reasons, one of which, in my opinion, was that money was so easily made in the early days that the owners were content to rest on their oars and enjoy the fortunes they had secured. Though the coal-tar color industry had languished, it had never actually become extinct. It may, however, be asserted that the British industry had sunk to its lowest depths about the years

1898-1900; but from then onward it commenced to recover, till in 1913 its competition had being increasingly felt by the German firms, which, just previous to the war, were subjecting the British firms to severe price-cutting campaign because the British competition in sulphur and direct cotton blacks was reducing to complete nullity the German conventions in those two classes of colors. This improvement had been brought about by enlightened management, which had gradually and unobtrusively been modernizing their works and their methods. Had not this revival taken place the task of building up an industry on a national scale would have been made infinitely more difficult, whilst the panic in the dyeing trades at the outbreak of war would have been gravely aggravated and would in all probability have jeopardized the dyeing of the clothing equipment required by the military authorities. The British firms were a considerable national asset at the outbreak of war; had these firms with their trained staffs and experience not been available, it would have gone much harder with color consumers. The fact that a private firm like Read Holliday & Sons, Ltd., were in a position to pay a dividend of 10 per cent. for the five years previous to the war, when they faced, unaided, the full weight of the German competition, shows that it was possible for a British firm to make a successful flight against the Germans. It is a favorable omen which is consistently ignored by those critics who are untiring in their gloomy forecasts of failure for the efforts presently being made in Great Britain — professional whimperers, as Professor Tilden termed them the other day.

[*The Lecturer then dealt with certain misapprehensions which have been current with regard to the British color manufacturing firms. It had been stated that the British firms had been much less generous and enterprising than the German firms in such matters as the matching of customers' patterns and the distribution of pattern cards.*

Controverting these statements, Mr. Whittaker said that for fifteen years he had been in charge of the experimental dyehouse of Messrs. Read Holliday & Sons, Ltd. (now British Dyes, Ltd.), during which period 50,000 patterns and samples had passed through the firm's books, and not one had ever been charged for. He also pointed out that this firm had introduced the Hydrosulphite Indigo vat from France into this country. A large number of pre-war pattern cards and circulars in various languages were shown.] *Mr. Whittaker proceeded as follows:*

Now let us examine the position at the outbreak of war as regards the coal-tar color industry in Great Britain. The principal firms engaged were:—The British Alizarine Co., which confined its products to Alizarin Orange, Alizarin Red, and Alizarin Blue—it is largely a co-operative company, as its shares are held for the most part by the large consumers of the above products; the Clayton Aniline Co., which had been absorbed by the Society of Chemical Industry, Basle, though it was located in Great Britain; Levinstein, Ltd., Manchester; Read Holliday & Sons, Ltd., Huddersfield. The two latter were limited companies, the majority of whose shares were held by the respective families.

The outbreak of war suddenly opened the eyes of the consumers of coal-tar colors in Great Britain to the disconcerting fact that they were largely dependent on Germany for their supplies; then ensued a panic which will ever be remembered by the staffs of the British firms, and which panic subjected them to an almost intolerable strain. The country soon realized that the manufacture of coal-tar colors was a pivot or key industry of the highest importance in which Germany held the dominating position, with Great Britain and Switzerland a long way behind. The realization of this fact was followed by a deluge of articles and correspondence containing the grossest mis-statements which appeared in the newspapers and journals, and were a source of no little amusement to the staffs of the British firms.

The cardinal facts of the situation, which were in danger of being lost amidst the controversy, were as follows:

In 1913 Great Britain imported coal-tar colors to the value of £1,946,224, representing 42 million pounds' weight of color, of which it was estimated £1,800,000 worth emanated from Germany. It must not, however, be assumed that all this quantity was consumed in Great

Britain, because a considerable quantity of color is bought here for shipment to India, Australasia, South America, and other countries. It is doubtful if much more than half a million of capital was employed in the British industry at the outbreak of war; so there you have the basic fact which faced the industry: how to replace an import of £1,800,000 by firms who did not control more than half a million capital. The task was economically and physically impossible of immediate execution in peace times; it was a hundredfold more impossible in the midst of the greatest war of all time.

The export value of German coal-tar colors throughout the world was, for the year 1913, £11,349,100; add to this the German home consumption at a generous estimate of £2,000,000, making a total turnover of £13,349,100. The capital of the German industry was £13,500,000 in 1913, showing that the annual production was approximately equal to the capital.

Another point is the supposed dependency of Germany on outside countries, particularly Great Britain, for many of the important raw materials of the coal-tar color industry. Such a state of dependency was no doubt existent in the earlier days of the industry; but the modern coke oven recovery plant has largely altered that state of affairs, as the following official figures for the year 1913 of the imports and exports of important raw materials connected with the German industry show. In considering these figures, I would ask you to bear in mind the fact that Germany's export represents the surplus after all the requirements of her home industry have been satisfied. Starting with benzol, toluol, etc., Germany exported 41,287,000 kilos, and imported only 6,709,600 kilos. These figures do not give much of an opening for crippling tactics. To these figures ought to be added 7,264,700 kilos aniline oil and salts exported by Germany against a negligible import of 156,100 kilos.

In 1913 Germany imported 4,155,200 kilos of carbolic acid, and exported 3,601,700 kilos, an adverse balance of, roughly, 500,000 kilos. It was well known by the tar distillers that the Bayer Co. were making an onslaught on the British market with synthetic carbolic acid, which would have effectively reduced the amount of pure carbolic acid distilled from coal-tar in this country. It must also be remembered that Germany will have made enormous quantities of synthetic carbolic acid during the war, so that under no combination of circumstances could its industry run short of carbolic acid after its experience of production during the war.

Passing on to naphthalene, Germany imported 5,248,700 kilos, and exported 6,151,110 kilos, in addition to 3,106,400 kilos of naphthols and naphthylamines. Again the balance is in her favor.

I now come to anthracene, of which Germany imported 1,286,100 kilos and exported 277,400 kilos. There the balance is decidedly against her, and it is the only important raw product for color manufacture in which Germany is deficient. It is the starting-point for alizarin and many of the most important vat colors, which latter have added so much to the prestige of the German firms. It must, however, be remembered that bromine enters largely into the constitution of many vat colors, which gives Germany an effective counter against the possible withholding of anthracene.

I now propose to pass on to the handicaps under which the British coal-tar color industry has been and is laboring.

The Achilles heel of the British industry was the fact that it had been in the habit of buying many of its intermediate products from the Continent. The result was that at the outbreak of war chemists had to work to replace these intermediate products, and suitable plant had to be erected which absorbed a large amount of energy without increasing the immediate output of color.

One of the greatest handicaps has been the shortage of chemists. On the outbreak of war I doubt if there were twenty British chemists who had had actual up-to-date experience in the manufacture of coal-tar colors on the commercial scale. Of those who had had experience, some had their energies diverted to the manufacture of explosives to the detriment of coal-tar color manufacture. It was an inevitable result of the close inter-relation between high explosives and coal-tar colors. No complaint is made of the diversion of this energy, but it requires to be stated as one of the definite handicaps of the industry during war time. There was no reservoir of trained chemists from which to draw, so that University trained men of good theoretical knowledge but no practical experience have had to be taken, and naturally some time must elapse before they become adapted to their new conditions. The outbreak of the war, bringing in its train the enormous demand for supplies of high explosives on a scale hitherto not contemplated, illustrated how closely inter-related was the manufacture of coal-tar colors and high explosives.

As everybody is aware, the two high explosives most largely in use are picric acid (or trinitrophenol) and trinitrotoluol. The latter requires similar apparatus to that which is used for making compounds like nitro-benzol, so essential in coal-tar color manufacture. The engineering trade has been so much occupied in connection with the supply of munitions that it has been difficult to get delivery of the plant for the necessary extensions. For the same reason there has been a shortage of the skilled fitters necessary for the erection of the plant and of men to erect the necessary buildings. In fact, the shortage of labor confronts one at every turn. The increases in the prices of copper and lead, which enter largely into the apparatus used in coal-tar color manufacture, have also added enormously to the cost of such plant.

The life-blood of the coal-tar color industry is sulphuric acid, fuming sulphuric acid, and nitric acid. It is the misfortune of color manufacture that it is impossible to make any color without the use of nitric and sulphuric acids, the latter being required in various strengths of fuming acid from 70 per cent. down to 20 per cent. SO_3 and D.O.V. These self-same acids are also indispensable for the manufacture of the two high explosives, lyddite and T.N.T. It is a matter which admits of no argument that the demand for acids for the manufacture of high explosives must take priority over their numerous industrial uses. In that fact you have the greatest handicap of the British coal-tar color industry, because, as is well known by every acid consumer, the supply of acids is nothing like equal to the demand.

Amongst the raw or primary products of the coal-tar color industry the four most important are benzol, toluol, naphthalene, and anthracene. The distribution of one of these products (viz., toluol) is controlled by the Government. The amount of toluol to be distilled from coal-tar has very definite limits, which are relatively small, so that the reason for this control is obvious. Benzol is the starting-point for the manufacture of synthetic carbolic acid, of which so much is being made at the present time owing to the demand far outstripping the production of carbolic acid distilled from coal-tar. This is being converted into picric acid. Benzol is also being used in large quantities for conversion into dinitrophenol, from which picric acid is also being manufactured.

Naphthalene and anthracene are free markets. The control of one of the chief primary products is, however, a heavy initial handicap on the output of coal-tar products.

Since the commencement of the war I have been in a specially favored position to diagnose what is passing in the minds of many color consumers. One common thought which is very prevalent is, "We can understand you not being able to make some of the German specialities such as Indanthrene, Alizarin Sapphirole, etc., nor do we expect you to do so immediately, but we cannot understand you not being able to supply such old colors as Bismarck brown, Benzopurpurine 4B, etc., the constitution and method of manufacture of which have been known for so many years." That is quite a reasonable attitude to adopt, and my paper will, I think, show completely the reason. Such colors are not being made freely at the present time, not through inability of British chemists to manufacture them, but owing to the fact that the necessary products are not available, since they are required for more important processes.

The surplus of benzol and toluol which is set free by the Government after all their requirements for explosive purposes have been met has a preferential call on it before it can be used for general color manufacture. Next to explosives it is the first duty of the British coal-tar industry to supply the various colors required for the varied equipments of the British, Colonial, and Allied Governments. People outside the trade have very little conception of the numerous colors required by the Government; they vary from mordant browns and sulphur blacks down to Methyl Violet for typewriter ribbons and Soluble Blue for ink for the Stationery Office. The huge demand for khaki uniforms required by the military authorities for the equipment of the troops caused a corresponding demand for mordant yellow, brown and green, blue or black. The demand at the outset for these colors was overwhelming. Mordant yellows were very scarce at the beginning, but the demand for these products has now been more than fully met. Seeing that salicylic acid is a constituent of all mordant yellows, and is in turn derived from carbolic acid, you will readily understand why it was scarce. Mordant browns never caused any difficulties, as the supply was and is more than sufficient to meet all requirements. The supply of mordant greens has also been very large. Sulphur yellows, browns, and blacks have also been supplied in very large quantities by the British firms for the cotton equipment of the armies, such as cotton webbing, tropical uniforms, trench capes, ground sheets, mosquito nets, etc. Not only have all the British requirements been met, but large quantities of British-made dyes have been used in Australian, Canadian, Belgian, French, Russian, Italian, and Serbian equipments. I do not give these facts as a handicap on the British industry; rather is it intensely proud of its achievements in this direction under such difficult conditions; but I do put it forward as a definite reason why many colors have not been made which would otherwise have been made had not the energies of the British chemists been occupied in producing explosives and equipment colors.

[*The Lecturer here gave an interesting account of the products obtained from the four chief primary products of the coal-tar color industry—benzol, toluol, naphthalene, and anthracene—and mentioned that British Dyes, Ltd., had now a large oleum plant and a large nitric acid plant working successfully, and that the shortage of acids in this country is being rectified.*] *He then said:*

I now propose to show you what has been done by the British firms in the way of satisfying the requirements of the British and Allied Governments in equipment colors.

Those people who are constantly depreciating the efforts of the British firms seem conveniently to forget what has been accomplished in this direction, and never think of putting it down on the credit side of the account.

You may have seen in the scare Press that the dyes being supplied by the British firms were not anything like as good as those of the German firms; but I wish to state most emphatically that khaki uniforms dyed with mordant yellow, brown and green of British manufacture are just as fast to light, exposure, and wear as any similar cloth that was previously delivered to the British Government dyed with German colors. The British firms have reason to be proud of their products for this purpose, and the day when it is necessary to stipulate German colors in British khaki specifications is past.

At the top of the khaki boom, when the military authorities were putting extreme pressure on the manufactures for delivery, one British firm alone delivered 145,000 lbs. weight of khaki wool dyestuffs in the month of December, 1915. That was a noteworthy effort of which the firm in question was particularly proud, yet according to our critics we ought to stand in sackcloth and ashes and confess our incompetence. Do you wonder that we refuse to do so? Let people contemplate what the manufacture of that large weight of color meant; then they will realize what British firms have done: why other colors were in short supply.

A large quantity of mordant green was supplied by British firms for dyeing the uniforms of the Italian army. Large quantities of mordant yellow, brown and green of British manufacture are at the present time being used in the uniform cloth of the Russian army now being made in Great Britain. I show you the two Russian shades here—a red shade and a green shade. Here you have three colors which have been supplied by British firms in huge quantities for the cotton equipments required by the authorities, such as tropical uniforms, cotton webbing, ground sheets, mosquito nets, etc. The British army is admittedly the best-equipped army in the field to-day. Are the British color firms to be denied their share of the credit for this pleasing result? When you see at the various railway stations the soldiers coming home on leave, with the mud of the trenches thick upon them, showing under what severe conditions they have been fighting, do their uniforms and equipment look badly faded? They do not, but they are still a good khaki, showing that the British-made colors are not incapable of withstanding the severest war conditions.

Few people have a true conception of the amount of preliminary work which has to be carried out in the manufacture of a coal-tar color. A direct cotton black, which in its manufacture has involved twenty-one distinct chemical operations, is nevertheless known in the dyeing trade as a common black. The amount of preliminary and intermediate work which has to be done before a color can actually be produced from coal-tar is very large; it is the amount of this preliminary work which makes the progress appear so slow to those people who have no conception of the detail work in color making.

(*Continued in next issue*)

AMERICAN
DYESTUFF REPORTER

A Weekly Publication devoted to
DYESTUFFS, COLORS and ALLIED CHEMICALS
Circulating Wherever Dyestuffs are Used

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To What Extent May Dyes Be Standardized?

Before the war a standard for any particular dye represented an arbitrary quality which had been adopted by its manufacturer. It was the custom for each of the large factories to send to their competitors (even when they were really competitors) at least a kilogram of the new dye with descriptive matter relating to constitution and working qualities. In this way infringements were avoided, and if another factory obtained a license to manufacture the color it was customary to put out a type that corresponded as closely as possible with the original.

In the case of dyes that form true crystals we have reason to believe that the types should represent 100% dyestuff, because one of the fundamental rules of organic chemistry is that the formation of perfect crystals is dependent on the purity of the compound. Nevertheless there are many ways of making commercial crystal dyes that fall far below 100% but the possibility of obtaining a strictly pure crystal makes the standardization of such products a relatively easy matter.

That the original standards were purely arbitrary is best seen in such dyes as Rhodamine B which was sold for many years as a type before the consumer knew that it was possible to obtain it five times stronger. Chrysophenine and Sky Blue FF both appeared as triple strength shortly before the war and Chinoline Yellow was offered which was five times the strength of the Badische type.

The advantage to the manufacturer was naturally in the sale of concentrated products as the reduction in expenses due to the handling of less bulk could hardly be overlooked, but if the importation into this country of concentrated dyes, and their reduction to type before sale, was the means of avoiding the payment of full duty it puts the matter in another light.

The consumer is somewhat to blame. Even today a cheap much-reduced dye will be bought more eagerly than a better money-value in a high priced concentrated color. The consumer ought to know that if he saves the cost of reducing, the handling and packing of a larger lot and the lower transportation charges by the use of a strong dye he is sure to have these extra charges added when he buys a weak product. There was a reason why it paid to import strong dyes and sell weak ones when they came from foreign countries, but now the colors made in America are more profitable to maker and consumer if they are sold at the highest possible concentration. The consumer has only to test and compare prices and not be misled by low prices as the highest priced goods are generally the best value per unit of strength. Coal is bought on a basis of Therman units, Caustic Soda on its per cent of purity and every supply that can be tested is given a valuation, but dyes are often judged by a sort of rule of thumb even though they are the most expensive commodities purchased by the mills.

The American dye manufacturer is in no way bound to adhere to the types or standards of strength that were in use before the war. We can be radical and

adopt an entirely new system if we wish to do so. It would be unjust to the smaller manufacturers if we took for each color a standard of theoretical purity based on the pure chemical compound representing that color.

We might learn something from the medical profession and model our system on the U. S. Pharmacopoea. A dye then would be defined as being a certain chemical compound, the chief ingredient would have to be present in a percentage that would be determined from observation of dyes that are now practical commercial products, certain impurities must be absent and certain others may be present within defined limits. The color produced when dyed under certain rigid conditions must correspond to an arbitrary standard. The standard of color could be selected from the products of different manufacturers and whether a sample that is off-shade could be shaded by another color, to match the standard, or whether it would get a lower rating would have to be decided by the proper authorities. The consumer does not realize that the output of the most efficient dye factory is never absolutely uniform and that considerable allowance must be made, by not demanding too rigid a standard, so that extra strong lots may be reduced and slight off-shades corrected, without it being considered as adulteration.

The actual color content of most of the basic dyes can be determined accurately by titration methods. Other classes of colors having solubility in alcohol, etc. can be separated, but quite a number especially direct cotton dyes, sulphur and vat colors will need some special methods invented for their analysis. There is a method of exact identification, by means of the spectroscope and Formanek's tables, but the presence of shading colors and by-products from impurities in commercial dyes makes this method one of scientific rather than practical utility. Perhaps a further explanation of such a statement is necessary—we mean that any method adopted should be capable of use by the average dye tester and not be made so complicated that none but an experienced chemist could expect to get accurate results.

The adoption of practical dye standards would involve a repository and custodian of standards from which smaller lots could be supplied for individual use, an arrangement which could be made self-supporting.

There is yet another phase of dye testing and sampling which has not been taken into account—moisture content. Some dyes like Fast Acid Violet 10B, Geigy's Erioglancine, Acid Greens, Methyl Violet 2B, etc. are quite hygroscopic or deliquescent and even dissolve in the moisture they absorb from moist air. Others do not give such visible evidence but simply cake together and still others retain their powder form without change. If a standard had been packed in a tight receptacle before it had absorbed much moisture from the air and a small portion of the same lot had been more freely exposed there could easily exist a difference of five per cent or more in the moisture content. Five per cent of moisture would reduce a dye just as efficiently as five per cent of salt and in a case of controversy this should always be remembered. A standard of a dye must be defined among other features, as being correct only at e.g. 65% humidity and 75° F. (these being the Bureau of Standards figures for normal humidity and temperature). Tests against standard would also be correct if exposed freely to the air, with the standard, about one hour before weighing.

The average commercial dye will vary within five per cent in strength in different parts of the same package. The average eye cannot detect a difference of less than five per cent in two dyeings on textile fabrics. From this it is evident that due allowance must be made for such conditions and that the introduction of absolute requirements might lead to endless controversies.

There seems to be no reason why an American standardization cannot be effected. Its utility will depend entirely on the co-operation of the manufacturers and their voluntary consent to be bound by the restrictions thus placed on them.

When the consumer fully appreciates the system it will overcome many of the difficulties in selling a new factory product and will automatically correct many of the undesirable features that existed before the war.

Dyestuffs Continue Quiet

In a recent interview with one of authority in the dyestuff industry, we were informed that this week has seen a lull in the market, which is due perhaps to conflicting reports from Washington.

The manufacturers are awaiting more definite information regarding the bills now up for discussion. If the proposed standardization of fabrics and colors is accepted, it will have a decided effect upon the industry as a whole.

The manufacturers are looking forward with much interest to the coming meeting of American Dyestuff Manufacturers, to be held in New York City on January the twenty-second and twenty-third.

It is felt that the manufacturers, by concentration, can demand certain things from the Government which are now unattainable.

Little activity is expected until after the meeting, for reasons that are obvious to all.

A meeting of those interested in the proper conduct of the Reporter will be held in the offices of the Black Publishing Company, Four Seventy Fourth Avenue, New York City, on Tuesday evening, the eighth of January.

Plans will be made by which we will be enabled to place before our readers articles that are carefully censored.

"This is rather an unusual procedure for a trade paper, but in this industry we feel that it is necessary."

New Use for Turkey Red Oil

A new use has been found by the paper trade for sulphonated castor or red oil. This product, as is well known, is used extensively in cotton finishing and dyeing.

After some experimenting, it has been found that a small quantity of an alcoholic solution of this oil will prevent the usual formation of foam in the beaters.

Notes of the Trade

The Lansing Chemical Company, of Lansing, Michigan, has increased its capital from $100,000 to $200,000.

The Shermville Chemical Works has been incorporated at Chicago, Ill., with a capital of $2,500.

The exports of logwood from Jamaica to this country from July to September, inclusive, 1917, were valued at $114,899 as compared with similar exports for the same period of 1916, valued at $496,120.

Stockholders of the Grasseli Chemical Co., New York, will hold a special meeting Jan. 24 to vote on a proposed increase of the authorized capital stock from $20,000,000 to $50,000,000. The proposal includes an increase of $10,000,000 in the preferred stock to $15,000,000, and an increase of $20,000,000 in the common stock to $35,000,000.

The Empire Piece Dyeing and Finishing Co., of Paterson, N. J., has filed an amendment to its charter, increasing the capital from $25,000 to $50,000.

The Brooklyn Chemical Works has been incorporated with a capital of $30,000, by J. P. Buzzio, A. Farrey and B. Isaacs.

A society for the furtherance of chemical knowledge and current scientific data has been organized by the technical chemists and chemical engineers of Tacoma, Wash. The president is Paul Van Horst and the secretary is B. H. Bennetts.

The L. & S. Silk Co., 159 Ward street, Paterson, N. J., has been incorporated, the capital stock being $20,000. The incorporators are Hyman and Mary Lefkowitz and Charles Schwartz. This company will take over the Lefkowitz Silk Co. of Paterson.

J. A. Migel, New York, manufacturer of silks and other textile fabrics, has taken out incorporation papers, the capital stock being placed at $1,000,000. The main plant of the company is located at 711 Sip street, West Hoboken, N. J.

M. Ascher Silk Corp., of New York, has been incorporated to manufacture silks, textiles, etc. The capital stock is $262,500. Moses Ascher, J. Yale Wilkins and Harry C. Durando, all of New York, are named as the incorporators.

The Artcraft Lorraine Silk Manufacturing Co., Inc., New York City, capitalibed at $7,500, has been incorporated. The manufacture of textiles will be carried on by this company, the incorporators being H. J. Cohen of New York, Harry L. Krackman and Isidore Margolis, Paterson, N. J.

The Henry Myer Thread Manufacturing Co., 400-406 South Market street, Chicago, Ill., advises that it is installing an additional winding and coning plant at 400-404 South Market street. The company manufactures window coning and spooling yarns and makes a specialty of mercerized thread, "Subsilk" brand.

In the future the local plant of Joseph Bancroft & Sons Co., Wilmington, Del., will bleach, dye and finish cotton piece goods only, the manufacture of cotton cloth for hollands and book-cloth having been transferred to the Reading, Pa., branch of the company.

The Lyon Carpet Co., Lowell, Mass., which has of late been operating a large part of its spinning machinery upon worsted knitting yarns in khaki and olive drab shades, is erecting an addition to its dye house and enlarging one end of its drying room, 14 x 66 feet. The roof of the building is now irregular, but it is to removed and will be replaced by a new once of equal height all around.

The Chemical Market

Conditions in this industry were quiet during the week and this can, no doubt, be attributed to the influence of the holidays.

The chemical manufacturers report some activity, but among the dealers there is a desire to sell, and sell quickly, because they find themselves stocked with a varied lot, with few buyers in sight.

Chemical manufacturers as well as dye manufacturers are awaiting reports from Washington before they proceed with plans for the new year.

The immediate outlook is not particularly bright and the unrest among the manufacturers is felt in the market.

Reports regarding the commandeering of chemicals has caused further perplexity and the shortage of several products demanded for federal use has caused a decided lull.

There is a heavy demand for sulphuric acid, but beyond this there is very little activity.

Vat Dye Manufacture

The following is an interview given the press by Mr. I. F. Stone of the Natural Aniline & Chemical Company, Inc., in which he outlined the possibilities in the vat dye industry. Considerable interest is centered on this subject regarding which Mr. Stone says:

"Vat dyes are by all odds the most important covered by German patents in this country. There are comparatively few aniline dyes patented here which are not already made in American plants. American manufacturers have not been able to make any progress in turning out vat dyes, however, and the German patents which will shortly be available through the issuance of lincenses will be of tremendous advantage in building up a well rounded out dye industry.

"The National Aniline and Chemical Company was among the first to put in an application for the use of German patents, most of the licenses asked for concerning vat dyes. No word has been received as to whether the licenses would be granted, but we expect action shortly.

"I understand that the Government's attitude toward the dye industry in very favorable and do not believe that any difficulty will be experienced in obtaining the licenses. I have no information as to the terms for which the licenses will be granted, but expect that they will be for the duration of the patent, the German owners to be compensated as the Government sees fit. To operate under the patents will require the expenditure of considerable capital and effort, and it would not pay American manufacturers to enter into the production of the articles patented merely temporarily. They must have some assurance of protection for the future.

"The basis of vat dyes is a coal tar derivative that is in plentiful supply here, but a new plant and equipment will be required for their manufacture. The construction of the plant would take some time, so that vat dyes could hardly be placed on the market for several months.

Exclusive License

"I do not think that the Government will discriminate in favor of any particular interests in the case of the dyestuffs industry and I doubt that the granting of exclusive licenses would be desirable. There is a broad enough field for all competitors. Particularly is this true of the vat dyes, for which there will unquestionably be a wide market. The number of applications to operate under these patents will be limited, principally because the development of the processes will involve a comparatively large investment.

"Synthetic indigo, which is generally classed with the vat dyes and, before the war, was manufactured exclusively in Germany, is already being produced here in commercial quantities, although not in amounts nearly sufficient to meet the demand. Synthetic indigo will be placed on the market next year, manufactured by an American process, and the du Pont interests have also developed a process independent of the German patent which will be employed to put American indigo on the market. The Dow Chemical Co., a western company located in Michigan, already is manufacturing synthetic indigo here.

"Our costs figure out approximately the same as the German costs. The final test will, of course, come only when we are turning out indigo on a commercial scale. But the indigo situation appears already to be fairly well in hand, and it is unlikely that the German patent will be employed as extensively as those on the general list of vat dyes.

"The addition of vat dyes to the line of colors made in America will insure a complete dye industry here. Aniline colors are now manufactured in the United States as good, if not better, in quality as those imported from Germany before the war, and the range of colors and shades is generally regarded as satisfactory. Production has reached a point where American requirements can be handled without much difficulty, and in certain lines a state of overproduction exists.

"Through the use of German patents Great Britain has established since 1914 a successful vat dye industry, producing colors that fully come up to standard. Recent reports show that it will be a matter of only a short time before British manufacturers will be able to produce vat dyes in sufficient amount to meet all the requirements of their market.

Government is in Need of Wood Alcohol and Bleaching Powder

The U. S. Signal Corps is in need of large supplies of wood alcohol and bleaching powder, but no intimation is given of their use. Belief is expressed that a price will be fixed through the War Industries Board sufficiently attractive to producers to eliminate any need of commandeering a sufficient supply for Government needs.

INQUIRY DEPARTMENT

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department, for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Coloring Varnishes

Question—What aniline dyes can be used to color varnishes without interfering with their drying properties?

Answer—Everything depends on the composition of the varnish. If a varnish contains turpentine, linseed or Chinese wood oil or other material having drying properties i. e. capable of absorbing oxygen from the air it will exert a reducing action on most coloring matters. Under the influence of this reducing action most aniline products are decolorized and the varnish will not dry until they are entirely destroyed. The most susceptible to this influence are the stearates and oleates of the basic dyes and nigrosine base. The azo oil yellows, reds and oranges do not lose their color but retard the drying until the color is faded by sunlight. Lacquers made with Amyl Acetate or Fusel oil can be used when freshly made and the color will return as the solvent evaporates but if kept for several days the color is destroyed permanently. The only really successful colored varnishes are those which do not depend on oxidation for their drying qualities but which are simple solutions of gums or resins in alcohol or other indifferent solvent. Such varnishes may be colored with spirit soluble basic dyes, but as these are also soluble in water it is better to use such of the oil colors as are soluble in alcohol. Stearates and oleates are to be avoided as they soften the gums and interfere with the formation of a good varnish film. Resinates and Carbolates are practical but are not much in evidence at present.

Basic dyes exactly precipitated with acid dyes give products soluble in alcohol, but not in water, and are very useful for this class of work.

Tannin Mordants

Question—What is the effect in using too much and too little tannin mordant for basic dyestuffs on cotton?

Answer—We presume in both cases that sufficient Antimony has been used to properly fix the mordant. When too much tannin is present there is a lack of penetration and the outside parts of the skeins are full of bronzy patches while the interior is often pale and even undyed. An excess of Acetic Acid would give a more even dyeing but the tendency to crock or rub off would be quite pronounced. When too little tannin is used a thin, bright and even shade may result but the bath will not exhaust and if the rinsing is not thorough the strongly colored liquid will accumulate at the end of the skeins and cause bronzy stains. In the first case the bronziness caused by too much tannin will not wash off readily but when due to the later cause will wash out quite readily.

How Chrome Green is Made

From an interesting booklet on the Paint and Varnish Making Industry in Philadelphia, prepared by Ernest T. Trigg for the Philadelphia Chamber of Commerce, we quote the following brief popular statement on chemical dry colors:

Chrome green is probably the most widely known among the group of commercial pigments known as dry colors. It is composed of two basic colors, namely, blue and yellow. The combination of these colors which produces green is largely mechanical. It is the blending together of these colors to produce a number of shades of green. These shades run from the palest yallow-toned to the deepest blue-toned greens.

The union of the two colors can be accomplished in a mechanical way by mixing the two colors in the dry state, but it is more scientifically done by what is known as the "wet process." Here we have a combination of the two colors,

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Educating the Merchant

The coal-tar industry—from a standpoint of production—is assuredly well established in this country. The lamentable fact is that the consumer in the textile field does not know what has actually been accomplished.

We were in conversation a few days ago with a manufacturer who is placing on the market a blue-black dye which is in great demand by the hosiery trade. We examined a dyeing of this black and were informed by the manufacturer that one of the old-line houses had pronounced it a better quality black than was ever obtainable before the war. This is only one instance of the wonderful strides which have been made by American manufacturers in this new industry. We have seen the colors in the process of manufacture and have examined the dyeings of same and can say that the quality and range of colors is indeed surprising.

If propaganda of a misleading nature is to be directed by foreign countries against the American Dyestuff Industry, there would be no one more susceptible to influence than the merchant.

His education is of vital importance and should certainly not be neglected.

EDITOR.

If the department heads of the large textile houses and retail stores were to inspect the equipment of the plants, in and near this city, their opinion of American-made dyestuffs would be strengthened.

The department store manager is not wholly to blame for his hesitancy in recommending American-made dyestuffs. A great many manufacturers have desired to withhold information—for some unaccountable reason—and the result is indeed detrimental to the future of the industry.

The Manufacturer Must Be Less Secretive.

The manufacturer is now realizing that he must give the consumer more information regarding his efforts and successes and not limit himself to informing the broker only. Hitherto the information was attained through some unreliable brokers who contorted and garbled, to suit themselves, regardless of truth. Let us hope that the unreliable broker has passed out of existence, and that now the information will be given readily by the manufacturer and that by this information regarding the quality of his products, the man behind the counter, knowing existing conditions as they really are, may learn to do his share. Instead of insuring the customer that the dyes are not good, let us go back through the process of manufacture and we will find that the trouble is due to the dyes having been purchased from a broker and not received in the same condition as when they left the plant of the manufacturer. The broker in some instances does not care as he has little to lose and his protection is, "you bought from sample and test of the dye, so what can I do?" He assures the customer that he knows little or nothing about testing colors and by acknowledging his limitations, leaves a loop-hole of escape in the event of a discovery of an addition of foreign matter in the original shipment from the manufacturer.

A manufacturer who is building his business upon a hard-earned reputation, must hesitate before placing upon the market a dye of inferior quality and strength. He knows that each complaint from a customer will eventually come to him and that his mistakes will materially hinder his success and the success of the whole industry.

The man in the store must realize that a color made in this country must be equal to the German because the basic.

or crude materials which enter into its manufacture, are identically the same as those used by German manufacturers. It must be understood that we mean the products of reliable American manufacturers, who have a reputation to maintain and not those who only match certain colors and shades from the products of a number of different manufacturers.

A manufacturer succeeds in perfecting a certain color and then because of the demand, in most instances from second hands, he practices secretiveness, is content to sell his output and rest on his oars, without a thought of the future.

The demand for American-made dyestuffs is tremendous and because of his many most necessary points are neglected. This steady consumption will not continue and what then will be the result when competition does come? Will the consumer be educated to a point where he will continue to use dyestuffs of American manufacture? Will the boss-dyer be influenced by foreign manufacturers who will again try to monopolize this industry?

Will it be a matter of fair competition, or will certain interests exert their influence with the dye department to such an extent that their products only will meet the requirements? When the cyclonic wave of competition does come, what will happen to the small manufacturer who has built his business upon the foundation of present-day demand?

Is he in a position as an individual to make an appeal to the Government for necessary protection? Even the Government does not know what is actually transpiring with regards to the small manufacturer and what he is accomplishing. We know of a manufacturer who is placing a certain color on the market (Fuchsine) and he is so secretive about his actions that he moved his apparatus in piece by piece, and at night.

It is the actions of these men that hinder progress and awaken a feeling of suspicion in the minds of the consumer. The one factor upon which the industry is dependent is coöperation of chemists, manufacturer, consumer and Government.

The British Coal-Tar Industry and Its Difficulties in Times of War

(Continued from last issue)

The future of the British coal-tar color industry is a fascinating subject, about which every man may speculate, but of which no man may speak with certitude. True to our national character, the scientific pessimists are enjoying themselves preaching national disaster unless their own particular nostrums are adopted. I am unmoved by these predictions. I am old enough to remember the British push-cycle trade being told that the American push-cycle would sweep them out of the market; where is the American push-cycle in Great Britain to-day? The same jeremiads were sung about the British motor trade as compared with the French: does not the British motor to-day stand unsurpassed? Of more recent date, the British aeroplane has been denounced as inefficient, but which aeroplane flies over its enemy's lines the more—the British or the German? Therefore I am unmoved by the prophets of gloom concerning the coal-tar trade color. At the outbreak of war predictions of dire disaster were prophesied to the textile trade, owing to the shutting off of German colors. Those predictions have been completely falsified, because what do we actually find? We find the shares of the leading color-consuming companies in this country actually standing at much higher figures than they were before the war; textile shares are one of the features of the Stock Exchanges. I maintain that the British firms can claim a share in that very satisfactory state of affairs, owing to the way in which they have expanded their supplies. The British firms had not only the future for which to provide, but they had also the immediate shortage with which to deal. Naturally steps had to be taken which would not in normal times have been tolerated, but the successful way in which they dealt with that shortage is reflected in the equipment of the British army, and in the fact that the dyeing trade, instead of sinking in disaster, has never been so prosperous.

The war has opened the eyes of the world to the value of the chemist, who now bids fair to be granted that status which should always have been his. The future is with the trained chemist. Research is now being organized on a scale which has never before been attempted in Great Britain, and British Dyes, Ltd., are happy to know that the director of their research department, in the person of Professor W. H. Perkin, possesses a name of the happiest augury in the coal-tar color industry.

When I think of the army of research chemists employed in the past by the German firms, I am amazed, not at the results which they have produced, but I am amazed that the results were not much greater. The German firms employed mass tactics with their chemists, just as their General Staff employ mass tactics with their soldiers. Why should not the British chemist do quite as well as the German chemist? He is at last being given a chance to fight on equal terms. The future will show the outcome of that fight. Speaking for my colleagues, we enter the fight with full knowledge of its severity, but with great keenness and every confidence.

Cannot the pessimists draw some cheer from the success of the national efforts in the manufacture of high explosives? We never pretended to be a nation skilled in industrial organic chemistry, but look at the splendid results produced in a short time by British chemists in the matter of high explosives under the organizing genius and enthusiasm of Lord Moulton.

If the British consumers are honest in their desire not to buy German dyes again, there are already many dyes on the list which they need never buy from Germany again, and this list will grow rapidly in the near future. The future of the British coal-tar color industry depends as much on the good-will of the consumer as on the industry itself. Let sympathy and patience be extended to the industry during these early days of expansion—the task in front of the industry is sufficiently heavy to warrant it.—*Jour. Royal Soc. Arts,* Dec. 8th, 1916.

The Warner Chemical Co., Carteret, N. J., has filed notice of an increase in its capital from $750,000 to $1,000,000 for expansion.

How Chrome Green is Made

(*Continued from page 7*)

chrome yellow (lead chromate), and Prussian blue (ferric-ferrocyanide) compounds obtained from the metals chromium, lead, iron, potassium or sodium. Chrome yellow, as made from metallic lead, is a lemon shade with a greenish tone. It enters into perfect harmany with the iron blue to produce greens, which can be manipulated to produce any shade of green desired.

The principal use of chrome green is in the manufacture of paints of various kinds, and it is very popular for such use because of its pleasing contrasts and because it is, when properly reinforced, very durable and fast to light. It is also largely employed in the manufacture of oil cloths, linoleums and printing inks.

A detailed explanation of how a chrome green is made involves a detailed explanation of how both a chrome yellow and a Prussian blue are made. The following is the process of manufacturing a medium shade chrome green:

Making the Yellow

Two hundred and twenty-five pounds of litharge are dissolved in 215 pounds of acetic acid, with enough water to form a clear solution. The solution is made in a large wooden tub or tank under either hand or power agitation. Simultaneously, in a separate wooden tub or tank, 150 pounds of bichromate of potassium are dissolved in water by similar agitation, and then, when both solutions are ready, they are brought together in a separate and larger wooden tub or tank known as the striking tank, which for convenience is set just below the dissolving tanks. When the two solutions come together a chemical reaction takes place —the combining of the lead acetate (lead solution) and bichromate solution forms a chemical compound which gradually precipitates to the bottom of the striking tank and which is the desired lead chromate or chrome yellow. If it were to be finished as a chrome yellow it would then be washed by decantation until free from acid or soluble salts, filtered, dried and powdered as we later wash, filter, dry and powder the green. However, as it is to be used for making a green, the washing is deferred at this stage and the blue is introduced immediately.

Making the Blue

Sixty-five pounds of prussiate of potash are dissolved in water in one wooden tub or tank and 65 pounds of sulphate of iron (copperas) are dissolved in water in another wooden tub or tank. These two solutions are brought together in a larger striking tank in precisely the same manner as described for the yellow. The chemical product which forms as a precipitate is ferricferro cyanide. It appears as a whitish precipitate, and is, in the striking tank, oxidized with a combination of 50 pounds of sulphuric acid and 5 pounds of chloride of lime, separately dissolved in water or stirred in mechanically. When thus oxidized the precipitate is a very dark shade of blue. In the striking tank the blue is washed up with fresh water by repeated decantation until it is free from acid or soluble salts and tests neutral—(neither acid nor alkaline). At this stage it is liquid blue, such as is used in combination with the yellow to make greens. If it were to be finished as a Prussian blue it would be filtered, dried and powdered.

Making the Green

The liquid blue is next added to the yellow in the yellow striking tank (properly the green striking tank) under constant agitation, and the combination produces the medium shade of green desired. As soon as the chrome green has been formed it is allowed to precipitate, and it is then washtd up with fresh water by decantation until it is free from acid or soluble salts. It is then pulp green. The next step is to remove as much of the water as possible mechanically. This is done with a filter press. The press consists of a number of cells or chambers into which the pulp color is pumped or forced by air pressure. Each cell or chamber collects the pigment between filter cloths, while a large part of the water is forced through the cloths and runs out of a special drain attached to the bottom of each cell or chamber. The next step is to take the cells or chambers apart and remove the pasty cakes from the frames which form the cells or chambers. This is done by laying them flat on a tray and running a wide blade or knife around the edges. The cake drops out on the tray and the trays are then loaded on a portable truck to be dried.

The drying is done by wheeling the trucks holding the trays with the color cakes into a kiln or stove, which is steam heated and which is provided with a forced draft to circulate the heat thoroughly and to drive off, through suitable vents, the moisture as it evaporates from the cakes. Such a green as we have made will require drying for 36 hours at a temperature of 140 degrees Fahr. At the end of that time the kiln or stove is opened and the thoroughly dry cakes of color are removed and ground up inpalpably fine in specially designed mills. The color is then either packed in barrels and other packages or stored in bins for use.—*Oil Paint & Drug Review.*

Colored Silk Effects On Cloth

Silk effects have been produced in printing by means of finely-powdered metal, suspended in a binding medium.

With all its advantages, this method has two drawbacks, which must be considered, the first being that among the metallic powders available for such purposes there is not a single one which is actually white; that chiefly employed for the purpose (aluminium powder) is always greyish blue. The consequence of this is that in using the metallic powder processes it is not possible to produce a pure white on light substances. It is only on dark substances that, by contrast, the effects printed with metallic powders appear white.

The second drawback is the impossibility of printing any particularly desired tints with metallic powder, the printing being restricted to such shades of color as are found in the aniline colors. The metallic powders colored with coal-tar colors, moreover, owing to the colors lying only on the surface, have the disadvantage that when rubbed, the color is removed and the metal beneath exposed.

The coloring of the binding medium is not practicable, as in the first place the binding media, which can be used for metallic powders, are not easily colored; and in the second place, the metallic powders suspended in the medium, which is colored with great difficulty, alter the color, and in certain circumstances entirely nullify the effect. Thus, the coloring of the binding medium results either in the production of improperly colored or entirely colorless objects.

To overcome this trouble is the gist of a process invented by an Austrian chemist. By its employment it is possible to obtain pure white silk-like glassy effects in any color, at the option of the colorist.

CELLULOSE AND MICA

The method is based on the principle of mutual action of cellulose and cellulose derivatives and finely-powdered mica. The employment of mica adhesively attached to woven materials is well known, but the highly effective and in every respect genuine result produced by the combined action of mica and cellulose derivatives is the gist of the new process. If an impression be made on a ground with a solution of cellulose, nitrocellulose, viscose, or acetate of cellulose, in no instance is a silk effect produced either with or without subsequent calendering. The ground shows through the transparent impression and prevents the desired effect.

By the addition of a substance producing non-transparency, for example, a powdered white coloring body, no better result is obtained. The lustreless white powder which does not reflect the light, destroys the lustre of the cellulose or of its derivatives, and the result is that impressions are produced in no way differing from those obtained by using the white coloring body in combination with another binding medium.

On the other hand, it can be easily shown that finely powdered mica in ordinary media does not produce silk-like glossy effects. Neither gelatine nor albumen, the carbohydrates still employed as binding media solutions of resin or any kinds of varnish, when mixed with mica, produce satisfactory, glossy, silk-like effects, as these binding media more or less completely obscure the lustre of the mica. Only by the employment of mica in combination with cellulose, nitrocellulose, viscose, and other derivatives of cellulose, are silk-like glossy effects produced. It is expressly pointed out by the inventor that cellulose and its derivatives do not act exclusively as binding or fixing media for the finely powdered mica; the mica could be equally well fixed, or in certain instances even better, with other fixing media—for example, gelatine, albumen, varnish, and solutions of resin. What is actually under consideration here is the combined action of the mica with the cellulose derivatives, which are known to possess a lustre-like silk.

As the solutions of cellulose derivatives can easily be colored without injuriously affecting their lustre and that of the mica when the drying is effected, and without having their tints undesirably affected by the mica, it is possible to produce colored, silk-like lustrous printing effects, the tints of which are entirely at the option of the colorist. The importance of this procedure for the colorist, who is at present confined to the tints given by metallic powder, and in the production of thoroughly soft tones which are not obtained at all when metallic powders are used, as well as for printing effects with varying tones, will be readily seen.

THE PROCESS

The process consists in dissolving the cellulose or its derivatives in a solvent, and mixing it, colored or non-colored, with finely powdered mica, and printing the particular ground with the resulting paste. The printed material is dried in a drying chamber or on heated rollers.

In order to increase or improve the effect, the moistened or dried impressed material may be pressed or subjected to the right or left side action of a friction or silk-finishing calendar.

When viscose is employed, there is the further action by which it is rendered insoluble by steaming. In order that impressionable solutions of celluloid nitrates (pyroxylines) may be obtained on the roller machine, it is desirable not to employ solvents with a very low boiling point.

As an example, the following proportions give good results: 100 parts by weight of a 15 per cent solution of nitrocellulose (nitrate of cellulose, pyroxyline, collodion cotton, etc.) in a suitable solvent (for example, amylacetate, butylacetate, etc.) to which a small quantity of a softening medium, such as castor oil or glycerine, may be added, are thoroughly mixed with 8 to 10 parts in weight of finely powdered mica. The particular ground is then covered by hand or machine with the paste and dried.

The printed material may be finally finished off by ordinary or silk-finishing calenders, or by pressing.

—*Dyer & Calico Printer.*

Dyestuff Adulteration

Receipt is acknowledged of your letter of January 6. In reply would say that we are of the opinion that there is need for such a magazine as you publish.

It is our opinion that there has been considerable adulteration in this industry in the past two years, and we know it has put the paper manufacturers on their guard in dealing through brokers and commission men, and we believe that a discussion of this phrase of the industry would be very interesting.

"From a Business Man to His Son"

THE SALINE TINTS CORPORATION

SOMEWHERE IN
LOWER MANHATTAN.
Jan. 1, 1918.

My Dear Bennie:

So you say you will be out of Sing Sing in another month and want to join me in the dye business instead of following your regular strong arm work. My boy don't do it! Stick to your old business for it is at least respectable, although there may not be so much easy money walking on the dark streets as there was before the war and as there is in this line; but consider the family! I am getting old and cannot go about much, I cannot very well follow my old line of blackmail but my experience has been a fine thing in this game.

It looks now as if this jig was about played out, there is too much good stuff, made in this country, getting out and too little left of the old lots to keep all of us busy. Then the easy marks are getting wise to everything so that now they won't pay up until they have the stuff tested and you know how much chance we used to have when a rube wanted to take his gold brick to a jeweler before he loosened up.

Last week one of them gave me a new idea. He said he would rather have me raise his check ten percent than to take it out of the goods, providing it was all the same to me. He was trying to be funny, but honest, it's easier and safer now to run the check up a few figures than it is to dope the goods.

The straight guys, that sell American stuff, are getting together and I see my finish. They call us ''gyps'' but you know, Bennie, we never sold lame horses and stole them back next night. I admit that since I have been dye broking I've had to pull off some pretty raw deals, worse stuff than you ever had to when you held up some young plute in a dark hallway or when I was doing my best blackmail work, but now there is getting to be too much risk and I always did hate publicity and if I have to come up to your present hotel I think the inactivity would kill me.

By the time you are out Bennie, I will have this company sold out and we will go back to the old lay and let your dear old dad die respected.

If you know any good young fellows up there who are coming out and you think they would make good salesmen I might use them for a month or so.

With best wishes for an early meeting, as ever,

Your
DAD.

Progress in Dye Manufacture

By Louis Lazard.

Judge of the Brussels Court of Commerce and Vice-President of the Chemical Section of the Brussels Chamber of Commerce.

A few years ago a very few people outside of the sellers and users of dyestuffs knew what aniline dyes were, but since 1914 there have been so many fairy tales about them that the public seems to be interested in the evolution which has taken place in this trade.

The people have learned that the Germans were practically in control of this business, for, roughly speaking, they were supplying 80 to 85 per cent. of the world's consumption. Their goods were known in even the smallest manufacturing centers. They had been remarkably successful, due in part to the fact that they agreed to allow long credit to their customers and to comply with their requests concerning packing, labeling, etc.

France and England, where the first attempt to manufacture aniline colors was made, and which revolutionized the dyeing process, did not follow sufficiently close the recent discovery. As a result, they let the initiative pass nearly altogether into the hands of the Teutons, who made a careful study of the new science, working out fresh processes, improving machinery and formulas for getting the requested shades and fastness for the various materials to be handled. It came to a point where competition with Germany was practically impossible, on account of all sinking funds having been provided for and also because of the tremendous quantities turned out. It was out of the question to start a new factory in any country where there was no protection or a low tariff, as the enterprise would have been drowned out of business immediately.

There is another point which has to be emphasized with regard to the business methods of the Germans. They realized it would help matters to deal direct with customers in their own language, and in their schools young boys were taught French, English, and even Spanish, thus enabling them to correspond with every important country.

Since August, 1914, however, much headway has been made in England, America, and Switzerland, and the manufacturing of anilines has been taken up on a large scale also by Japan, France and Italy. Before the war the industry was more or less at a standstill here, for the very reason that the intermediates needed in the manufacture of the dyes were not produced in America. They had to be imported from England and Germany, thus placing the manufacturers in a position where they could not compete with the German producers except for a few articles, but, since the war, the progress of the chemical business in the United States has been simply wonderful, and I may safely say that for the future this country will not be dependent upon foreign makers. At any rate, one cannot possibly expect to reach within three years the diversity of colors which took the Germans fifty years of constant work to produce.

The manufacture of the so-called intermediates produced from the distillation of coal tar and from which dyestuffs are derived has been started, and if not all the coal tar products, at least the most important ones are being made here, thus enabling the production of various interesting aniline dyes. Some of these intermediates, such as benzine, toluene, xylenes, xylidin, alphanaphtylamine, beta naphtol, etc., are manufactured on a large scale, although some, as, for instance, dianisidine, are only produced in small quantities.

The manufacturers from the beginning wanted to be on the safe side and to help the trade as much as possible. This explains why they started producing the colors which were most in demand and those which could be obtained by using some intermediates, the manufacturing of which had been taken up here especially, in order to meet the demand for high explosives then badly needed by the Allies, whose output at that time was extremely small. As people know, some of these intermediates are used both for explosives and dye manufacturing, and this is what made the German dye manufacturers so helpful; they could at very short notice transform their plants into effective explosive factories.

Since the beginning of hostilities the manufacturers in the United States of America have increased their production daily, and from time to time a new color is added. It is quite true that the fastest colors are not made here yet. Neither are the alizarines and so-called vat colors, which are fast to light and to washing on cotton and silk, but one must bear in mind that "Rome was not built in a day," and as the manufacturers have proven themselves capable of making just as good dyes as Germany, the fast colors will also be produced here. Even now a start has been made to make a few of them. Some of these colors are imported from Switzerland, and the users who absolutely need them can get small quantities.

(*Continued in the next issue*)

AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to
DYESTUFFS, COLORS and ALLIED CHEMICALS
Circulating Wherever Dyestuffs are Used

Vol. I New York, January 14th, 1918 No. 15

"Made in Germany"

The daily papers recently published the following article, which was spread broadcast over the country. It is reproduced here in order to counteract if possible any fake impressions it may convey:

British Report Capture of Dye Secrets

AGENT OF MERCHANTS WAS PURSUED, DRUGGED, AND ASSAULTED BY SPIES IN SWITZERLAND

LONDON, Jan. 10.—The Daily Mail's announcement that a group of men in the British textile trade has succeeded in obtaining in Switzerland the secret formula of the German dye industry has created great satisfaction in industrial circles.

The merchants who have captured the formula, The Daily Mail says, do not intend to form a monopoly in this country. They refused tempting offers from capitalists. It is their intention to offer the formula to the British Government for use in already established works. Their sole desire is to secure for the whole of the textile industry of England a full and cheap supply of fast dyes.

Two men were chiefly instrumental in capturing the formula. They are John Leyland and Richard Baldry, London textile merchants. Two years ago they heard of a chemist in Switzerland who possessed the formula for the Badische aniline dyes and sent a representative to get in touch with him. Later they obtained the assistance of the British Government and were allowed to obtain help from F. M. Row of the Manchester School of Technology, a leading dye chemist, who went to Switzerland, where he conducted tests with the formulas, which were entirely satisfactory. The Foreign Office detached a Consular officer to watch the experiments and certify their correctness.

Leyland, speaking to a Daily Mail representative yesterday, said:

"We are indebted to the Foreign Office for placing every facility at our disposal. In fact, without the aid of the Foreign Office it is doubtful whether we

Special attention is called to the proposed establishment of an association of American Dyestuff Manufacturers, an organization meeting of which is to be held at the Chemists' Club on January 22-23., 1918.

Full details in regard to this meeting, together with a list of those manufacturers and dealers who have signified their intention of participating, will be found on pages 6-7 of this issue.

could have got the samples or formulas to England. Our agent was dogged by German agents on every journey he made to Switzerland. His baggage was stolen, he was drugged and assaulted, and thrown into a gutter. Once he was followed by two men as far as Havre. He reported the facts to the French authorities, and they succeeded in capturing two undoubted German agents.

"On one occasion he was traveling with a diplomat whose baggage was marked with the same initials as his own. This man's baggage was also stolen en route.

"We are prepared to sell the formulas to the Government for use in the Government dye works and to allow the major portion of the profit to go to the nation on the understanding that the dyes will be sold freely to all British manufacturers who require them in their industries. There is hardly an industry in England which does not use dyes in one form or another. They are, of course, essential to the textile industries."

The Daily Mail says that on a cheap supply of dyes depend British textile industries with an output of more than £200,000,000 a year. The dye monopoly before the war gave Germany an export trade in fine chemicals of £97,500,000, according to Professor Grossmann. It also gave her almost a complete monopoly in the output of certain explosive gases, photographic chemicals, drugs, and sources of power derived from splitting up petroleum and gas tar products.

* * *

This is an excellent example of a certain variety of propaganda which emanates from the "teutonophilic pacifists," known by the shorter and uglier term of Potsdam fools.

Why are we so harsh in our condemnation of an apparently harmless article telling of a great piece of good fortune for our allies? Simply because this is only another thinly disguised specimen of Teutonism. There has been entirely too much published already to strengthen public opinion that there is a peculiar excellence in German dyestuff manufacturing methods. The present story assumes that the "secret" of manufacture is a priceless gem and leaves to the mind of the reader the later conclusion that of course the formulae are counterfeits, and after the war the real goods will again be available.

This sort of thing began immediately after the war, when dyers used every sort of dye regardless of their suitability for the work at hand. Department stores advertised that they could not guarantee colors and the scarcity of dyes was made the excuse for every imaginable defect in textiles. That there is still a quantity of the old types on the market shows that the scarcity was not a real one but the result of speculation. The supply of American made dyestuffs was soon available and had to take the blame for every error in judgment on the part of the dyers. The dyers revived the old Spanish proverb, "One cannot make a silk purse out of a pig's ear," without attempting to explain why they did not use silk as long as it lasted. All these shortcomings have been taken at their face value and turned into pro-German propaganda, with the result that the American public does not know the present status of the

American dyestuff industry. As most of our readers are consumers of dyestuffs, and may have been unduly influenced by the newspapers and the comments in general circulation, we feel it our duty to make such statements as will counteract the false impressions.

First, there is only one secret of German dyestuff manufacture, and that is to have plenty of capital and patience. In no branch of manufacture can we expect to get results when we must both hurry and economize. The formulae for the manufacture of all the dyes and intermediates are already known, and our chemists are as capable in every way as the Germans were. We need to get steady supplies of raw materials, team work from our laborers and time for adjustment of the many details necessary for such a complicated business. The general conditions of the country regarding supplies, labor and machinery are known to all. The matter of capital depends largely on the outlook, and that is in the hands of the Government.

It is positively not a matter of any deficiency in skill or lack of knowledge, and no apology is needed for such dyes as are now being made by the reputable houses. Dyes are being sold by some concerns that have not a single chemist in their employ and who know no more about making dyes than the average house-painter. Dyes are sold by some brokers who ought to be in jail, and it is these who cast much of the discredit on the steadily growing industry.

The consumer of dyes must learn to discriminate between the good and the bad, and use the good in the proper way. The dealer in dyed goods can now demand that they be dyed with the proper dyes, and the ultimate consumer can be just as particular. This will help the dye industry more than anything else and will automatically put an end to this foolish talk about German superiority.

The formation of the new dyestuff association will also help put an end to such stories which take a few facts that furnish names, etc., and supply enough fiction to help the German cause. Newspapers seldom publish cold facts unless they can couple them with a sensation and appropriate headlines. The technical papers generally are able to furnish accounts of all real news in the dyestuff field, and it is suggested that all good Americans use their best efforts to prevent the spread of such tales just as they would of imaginary naval disasters.

We do not need any German secrets to assist us, neither do the British factories. Both our allies and ourselves are in the dye business to stay—with your permission.

American Dyestuff Association

THE following article was written for the press by H. Gardner McKerrow, who has been the prime mover in bringing about the meeting of American Dyestuff Manufacturers which will take place in New York City January 22-23.

I have heard many manufacturers express the thought that personal motives influenced Mr. McKerrow in bringing about this meeting.

As editor of the American Dyestuff Reporter I have worked very closely with Mr. McKerrow and I certainly feel that personal motives did not influence him. A larger, greater motive, that of helping establish this infant industry as a permancy for America, was the thought that prompted him in taking the initiative in the movement.

Mr. McKerrow has outlined the subjects to be taken up by the committee, the most important of which is color standardization.

In each issue of the Reporter we have written upon this subject for we consider it of vital importance to the dyestuff industry.

Standardization of color will mean the elimination of certain so-termed manufacturers.

It will make possible a perfect systematization of the industry.

It will facilitate manufacture, aid the consumer of dyestuffs, protect the ultimate purchaser of fabrics, and help in thwarting the impending evil of price-cutting.

We of the Reporter are certainly in favor of the efforts of Mr. McKerrow.
—M. D. R.

H. Gardner McKerrow, of E. F. Drew & Co., Inc., 50 Broad Street, who has been organizing the initial convention of aniline dye manufacturers and dealers of the United States and Canada, to be held at The Chemists' Club, 50 East 41st Street, January 22 and 23, has written to every dye manufacturing concern which has promised to take part in the convention asking that the designation of a personal representative taking part in the convention be filed in advance of the meeting. Mr. McKerrow's letter included the following:

1. No preliminary organization has been attempted, and the ultimate developments will be entirely in the hands of those present at the conference. It is hoped, however, that gentlemen present will be prepared to make suggestions, to discuss questions affecting the industry, such as the tariff, arbitration of disputes, etc., as well as the question of the standardization of colors, and that a full and free interchange of ideas looking to the permanent intrenching of the industry may be obtained.

2. There will probably be present at the convention a considerable number of visitors, who, while interested in the movement, will have no fundamental right to participate in the work of the conven-

tion otherwise than taking part in the discussions in a suggestive and advisory capacity. There will necessarily be a number of motions on which votes will be taken, and it would seem desirable, therefore, that some method of regulating the voting in fairness to all should be devised.

3. In order, therefore, to limit this to a basis of one vote to each interest represented, it is suggested that you designate some representative of your concern who will be present at the meeting to cast the votes in your behalf, and you are urgently requested to do this by return mail so that a full and complete list of those having the right to vote shall be in the hands of the writer before the first session.

W. S. Culbertson, of the United States Tariff Commission, Washington, D. C., has written that several members of the commission will attend the convention.

The following business houses have signified their intention of attending the convention:

Edw. A. Williams Co.,
47 Exchange Place, Providence, R. I.

Agawam Chemical Wks., Inc.,
531 Grosvenor Bldg., Providence, R. I.

The Althouse Chemical Co.,
500-540 Pear St., Reading, Pa.

American Color Mfg. Co.,
Passaic, N. J.

Atlantic Dyestuff Co.,
88 Ames Bldg., Boston, Mass.

F. E. Atteaux & Co., Inc.,
174 Purchase St., Boston Mass.

The Ault & Wiborg Co.,
Cincinnati, Ohio

M. L. Barrett & Co.,
233 W. Lake St., Chicago, Ill.

Bick & Undy,
119 No. Front St., Philadelphia, Pa.

J. A. & W. Bird & Co.,
88 Pearl St., Boston, Mass.

Victor G. Bloede Co.,
Baltimore, Md.

Bosson & Lane,
Atlantic, Mass.

Boston Dyewood & Color Co.,
136 Federal St., Boston, Mass.

Samuel Cabot, Inc.,
141 Milk St., Boston, Mass.

Cambria Steel Co.,
Widner Bldg., Philadelphia, Pa.

Geo. W. Chapin,
218 Chestnut St., Philadelphia, Pa.

The Cronkite Co.,
185 Devonshire St., Boston, Mass.

Starkweather & Williams Co.,
47 Exchange Pl., Providence, R. I.

A. R. Cullin,
104 So. Adams Ave., Margate, N. J.

The Dow Chemical Co.,
Midland, Mich.

Dunker & Perkins,
287 Atlantic Ave., Boston Mass.

The Heller & Merz Co.,
Newark, N. J.

E. J. Feeley,
Box 2813, Boston, Mass.

W. H. Fieldhouse,
176 Federal St., Boston, Mass.

Fine Colors Co.,
Gun Mill Yard, Paterson, N. J.

Fisher Chemical Co.,
170 Summer St., Boston, Mass.

The J. B. Ford Co.,
Wyandotte, Mich.

The L. B. Fortner Co.,
36-38 Strawberry St., Philadelphia, Pa.

Mr. Dudley D. Gessler,
211 So. Front St., Philadelphia, Pa.

The Grasselli Chemical Co.,
Cleveland, Ohio, Mr. A. C. Sleeman

Sam Haigh & Co.,
66 Batterymarch St., Boston, Mass.

Frank Hartley,
146 Summer St., Boston, Mass.

Holland Aniline Co.,
Holland, Mich.

The Hord Color Products Co.,
Sandusky, Ohio

Hub Dyestuff & Chemical Co.,
595 E. 7th St., So. Boston, Mass.

Trico Chemical Co., Inc.,
Buffalo, N. Y.

Imperial Car Cleaner Co.,
115 Chestnut St., Newark, N. J.

Jacksonville Chemical Mfg. Co.,
Jacksonville, Fla.

Jennings & Co.,
93 Broad St., Boston, Mass.

John B. Lewis,
Providence, R. I.

Thos. J. MacEvoy,
1126 W. Ontario St., Philadelphia, Pa.

Monroe Color & Chemical Co.,
Quincy, Ill.

Monsato Chemical Wks.,
2nd St. & Lafayette Ave., St. Louis, Mo.

Geo. H. Morrill Co.,
Norwood, Mass.

F. Ellis Morris Co.,
Drexel Bldg., Philadelphia, Pa.

Mount Union Tanning & Extract Co.,
Mount Union, Pa.

Oakes Mfg. Co.,
Long Island City, N. Y.

The Obex Co.,
Marietta, O.

Organic Products Corp.,
Schenectady, N. Y.

C. C. Parsell & Co.,
2176 Transportation Bldg., Chicago, Ill.

Peerless Color Co.,
Bound Brook, N. J.

The Seydel Mfg. Co.,
86-100 Forrest St., Jersey City, N. J.

Sherman & Mason,
211 Front St., Philadelphia, Pa.

The Sherwin-Williams Co.,
Cleveland, O.

The Stanley Aniline Chemical Wks.,
Lock Haven, Pa.

United Supply Co.,
826 Layfette Bldg., Philadelphia, Pa.

U. S. Dye Extracts Co., Inc.,
801 Vernon Ave., Long Island City, N. Y.

Western Aniline Products Co.
1160 Old Colony Bldg., Chicago, Ill.

Frank L. Young Co.,
111 Purchase St., Boston, Mass.

Zinsser & Co.,
Hastings-on-Hudson, N. Y.

NEW YORK

A. & B. Export & Import Corp.,
78 Wall St.

The H. R. Ackerman Co., Inc.,
65 Fulton St.

Allied Drug & Chemical Exchange,
World Bldg., Park Row

The Bayer Company, Inc.,
117 Hudson St.

Binney & Smith Co.,
81-83 Fulton St.

Bothamley & Co.,
309 Broadway

Bowring & Co.,
17 Battery Pl.

L. H. Butcher Co., Inc.,
100 William St.

Century Colors Corp.,
182 Front St.

The Chemical Co., of America,
28 Pratt St.

Color & Chemical Products Co.,
78 Broad St.

Cosmic Anliine Wks., Inc.,
8 West Broadway

Dana & Co., Inc.,
111 Broadway

Delta Chemical Co., Inc.,
258 Broadway

David Dicks Co.,
302 Broadway

Dye Products & Chemical Co., Inc.
200 Fifth Ave,

Federal Dyestuff & Chemical Corp.,
2 Rector St.

A. W. Kretshmar,
396-8 Broadway

(*Continued on page 9*)

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Elisha Hewitt, Secretary and Treasurer

Myron Drew Reeser, Managing Editor

Is the Reporter of Value to You?

In the initial issue of the American Dyestuff Reporter we stated that the magazine would be sent to all consumers of dyestuff appearing on our list for a limited period free of charge, hoping in this way to give you an opportunity to become acquainted with the publication and judge of its worth before asking you to pay for it.

Nearly four months have elapsed since the first number was published and we feel that a fair opportunity to judge of the Reporter's merits has been accorded to you. We, therefore, now ask that you will either remit to us the subscription price of $3.00 or notify us of your wish to have the Reporter discontinued. All subscriptions entered at this time will be recorded on our books to include a period of one year from March 1, 1918.

There are three very good reasons why we need paid subscribers: 1st, because a paid circulation list will enable us to obtain second-class postal registry for the magazine, thus saving a considerable amount each week in postage; 2nd, because paid subscriptions are visible evidence to our advertisers that the magazine is read and appreciated, thus making it easier to increase our advertising revenue; 3rd, because the money received from your subscriptions will make it possible for us to improve the magazine from an editorial standpoint and enlarge its scope in many ways.

We sincerely trust that you have found the Reporter interesting enough to warrant the expenditure of $3.00 to insure its regular weekly receipt for a period of over thirteen months. If you have not done so, we should appreciation knowing wherein we have failed in order that we may do better in the future. In any event, whether you favor us with your subscription or direct us tc discontinue, we should like to have your criticism of the magazine—particularly helpful criticism which will enable us to improve it.

Bear in mind that the Reporter is *your* magazine. It is devoted to the interests of every consumer of dyestuff, in every trade. It is independent, unsubsidized, non-partizan, honest—working constantly for the highest ideals and advocating the best practical policies for the entire industry. We believe it worthy of your support and *worth $3.00 to you.*

New American Dyes

(Berlin papers please copy.)

We have lately met with a powdered Malachite Green which is a true double-oxalate and possesses a solubility equal to any German or Swiss product made before the war. We predicted that American manufacturers would have to abandon the hydrochloride and make the double-oxalate and are well pleased to see that such a product is now obtainable.

Primuline Equal to Imported

Primuline seems now to be of as good quality as the best imported. We trust the restrictions on toluol will not be long continued, as the base from which Primaline is made is also the starting point for an interesting series of direct yellows, made popular by the Clayton Aniline Co. of England before the war.

Chrysanine—Its Use

Chrysanine is the principal direct yellow made at present. It should always be used in soft water and with phosphate of soda, otherwise the shade will be dull.

A New Blue

Alkali Blue B made its debut last week. This product has been much in demand by makers of printing inks as no satisfactory substitutes have been obtainable.

Standard Shade for Army Goods

A chrome brown corresponding to the Badische Palatine Chrome Brown R has been found a useful ingredient in the olive drab for army goods. The yellow ingredient has long been on the market. It is now hoped that the color seen on the streets will be more like the standard shade and less of a mustard color.

Fast Colors on Piece Goods

The Serichrome and Aliyarol series of fast wool dyes answer every requirement for fast colors on piece goods. Some leave silk effects white and in the variety of shades offered give a complete line for fancy shades.

Is German-type a Standard

Victoria Blue B, which has been on the market for quite a time, is of far better solubility, purer shade and ten per cent better strength than the old German type.

Fuchsine Manufacture

New Fuchsine has been made commercially in this country. The early samples are of a much bluer tone than ordinary Fuchsine, but the solubility is satisfactory. We believe this to be the logical Fuchsine of the future and expect to soon see all manufacturers taking up the process.

A Dye Worthy of Attention

Phloxine is the nearest to Rhodamine in shade, and is perhaps the most beautiful shade of dye that has been made in this country since the war. The supply is practically all taken up at present, but the dye is worthy of note.

American Dyestuff Association

(Continued from page 7)

Fuerst Bros. & Co.,
2 & 4 Stone St.

The Georgia Peruvian Ochre Co.,
165 Broadway

Hadjopoulos & Sperco, Inc.,
29 Broadway

Hellenic Chemical & Color Co.,
427-429 West 13th St.

Herman & Herman, Inc.,
6 Church St.

Hine Bros.,
80 Maiden Lane

Holliday-Kemp Co., Inc.,
90 Williams St.

Chas. L. Huisking,
5 Platt St.

Imex Corporation,
25 Beaver St.

Innis Speiden & Co.,
46 Cliff St.

Louis Jaeck Co.,
257 Front St.

Chas. A. Johnson & Co.,
55-57 Franklin St.

National Aniline & Chemical Co., Inc.
244 Madison Ave.

C. J. Osborn Co.,
132 Nassau St.

Radcliff Color & Chemical Co.,
149 Broadway

Reliance Aniline & Chemical Co.,
100 Broadway

Sloan & Russell,
132 Nassau St.

Transatlantic Chemical Corp.,
80 Wall St.

E. M. & F. Waldo,
11 Broadway

Katzenbach & Co.,
100 William St.

E. Kley,
40 Pine St.

E. C. Klipstein & Sons, Co.,
644 Greenwich St.

J. Early Wood, Inc.,
21 Platt St.

Kuttroff, Pickhardt & Co., Inc.,
128 Duane St.

J. F. Linberg Co.,
101 Beekman St.

Logwood Products Corp.,
115 Broadway

Julian W. Lyon,
99-101 Beekman St.

MacAndrews & Forbes Co.,
200 Fifth Ave.

Madero Bros., Inc.,
115 Broadway

Manhattan Color & Chemical Co.,
23-25 Beaver St.

Manhattan Trading Co.,
2 Rector St.

Marden Orth & Hastings Corp.,
61 Broadway—Mr. Trask

Marden Orth & Hastings Corp.,
61 Broadway—C. A. Mace—

The L. Martin Co.,
81-83 Fulton St.

Frank L. May & Co., Inc.,
99 John St.

Newport Chemical Wks., Inc.,
120 Broadway

E. Puigdengolas S. C.,
299 Broadway

Read Holliday & Sons, Ltd.,
160 Franklin St.

J. G. Rutherford & Co.,
505 Broome St.

Tower Chemical Co., Inc.,
258 Broadway

The Ph. Van Ommeren Corp., of N. Y.,
42 Broadway

John J. White, Inc.,
149 Broadway

Caravel Co.,
13-21 Park Row

Frank Hemingway,
115 Broadway

Williamsburgh Chemical Co., Inc.,
230 Morgan Ave., Brooklyn, N. Y.

United Chemical & Color Co.,
235 Water St.

Dr. J. Merritt Matthews,
50 E. 41st St.

Iridescent Dyestuff & Color Co.,
247-251 Bush St., Brooklyn, N. Y.

The following order of business has been suggested for the convention:

Call to Order.
Election of Chairman of Convention.
Election of Secretary of Convention.
Election of Treasurer of Convention.
Statement of Objects of Convention.
Brief Addresses and Discussion.
Motion to Form Association.
Appointment of Committee to Organize Association.
Reading of Resolutions.
General Discussion.

Appointment of Committee on Resolutions.

Reports of Committees.

Election of Permanent Officers of Association.

INQUIRY DEPARTMENT

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department, for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Speck Dye on Blue

Question: What can be used as a speck dye on navy blue woolen goods?

Answer: The direct blue commonly known as Blue BH will dye cotton cold without staining wool and is the basis of both blue and black speck dyes.

Wool Dyeing

Question: Can Benzo Purpurine 4B be dyed on wool and for what class of goods is it suitable?

Answer: Benzo Purpurine 4B will dye wool from a neutral bath or in the presence of salt and is much faster to both light and acids than the same dye on cotton. The bright scarlets so obtained are very fast to salt water and washing, and may be used for edges of bathing suits, knitting yarns and blanket headings. Its use on cheap knitting yarns has the advantage that any cotton specks present will also be colored.

Properties of Rosophenine

Question: What are the properties of the dyestuff Rosophenine, an English product sold before the war?

Answer: The English Rosophenine may be considered identical with one of the Trona Reds of Bayer. The dyestuff is said to be a Primaline derivative. It is insoluble in water and requires to be put in solution by caustic soda. After solution it dyes direct by the use of a large amount of salt, then, after wringing or whizzing, it is passed through an acid bath, which fixes the color. The full shade is a brilliant scarlet, fast to light and acids, and resistant to neutral soaps. The color is particularly adapted to cotton flags, and we await its early manufacture in this country.

A Good Nigrosine

Question: What should be the properties of a strictly high grade spirit nigrosine?

Answer: First, perfect solubility at ordinary temperatures, showing the absence of any impurities providing the strength is fully up to the standard. A drop of the alcoholic solution on filter paper should be a uniform shade throughout and not red or yellowish on the edges. The drop after drying should not yield any further colored rings when wet with water, showing the absence of water-soluble dyes. The shade of a bluish type should be a clean blue-black and not a dirty purple, and the shade of a jet type should be a neutral tone, not a greenish grey. Denatured alcohol sometimes gives curious mottled effects, so the testing is best done with either pure alcohol or wood alcohol.

Progress in Dye Manufacture

By Louis Lazard

Judge of the Brussels Court of Commerce and Vice-President of the Chemical Section of the Brussels Chamber of Commerce

(*Continued from last week*)

In this respect they are on the same footing as the German firms and, when the conflict is over, they will be in a position to quote such prices that the Germans will not be able to compete here with any of the dyes which are actually manufactured on this side. This is made more certain by the fact that the American manufacturers are protected by a duty of 30 per cent. ad valorem and 5 cents per pound, as well as by anti-dumping laws.

Nowadays, the 5 cents a pound does not seem to amount to anything, but one must bear in mind that before the European conflict the average price of aniline dyes was around 25 cents a pound. After peace is declared, suppose the average price of colors should be 50 cents a pound, the 5 cents a pound would amount to an extra 10 per cent. duty, which means, altogether, 40 per cent. for the imported goods, and, with extensive manufacturing aided by the most modern equipment, I cannot possibly figure, under those circumstances, how any upsetting foreign competition could be feared on this market.

The Germans have been especially most successful because of their having extensive research laboratories. So far in this country manufacturers have not had the time to do much research work, as they had to face the situation and start to produce without delay the colors in demand; but the time will come when this condition will be changed and the business standardized. Then more attention will be paid to research work, for which producers have already on hand the most valuable chemists, and we may expect that America, too, will find new products which will be of much use to the manufacturers and dyers of cotton, wool, and silk goods, who more and more request fast colors.

There is, however, a fact which ought to be pointed out to the general public. It has been brought to my knowledge that in many cases the drygoods stores do not guarantee the colors, as the goods sold were not dyed with colors "made in Germany," and this also applies to the dyeing and cleaning establishments. In some instances, tags are even put on the goods drawing attention to this fact. It is really unfair that such statements should be made, for the reason that the colors actually marketed in this country are similar to the same colors received previously from Germany. The dyer knows that he cannot get, in fast colors, all the shades required, and he should recommend to his customers only shades which can be produced with colors giving satisfaction to the general public, but the amazing point is, since there is no importation of German dyes, that the fashions request more and more fancy shades. It would be advisable to have the buyers aware of the fact that it would be better to use the colors which can be had at reasonable prices instead of fancy shades for which, whenever they can be obtained, very high figures must be charged.—*The Times,* January 6th.

Blue That Stands Soap Test

Gallocyanine, as made in America, is used in conjunction with Alivarine yellow or Quercitron extract on a chrome mordant for dyeing navy blue for the sailors' uniforms. So far no other blue has been found to stand the U. S. Navy soap test.

Information Regarding the National Dyestuff Association

Shoppers will take notice that when they hear retailers or salespeople say, "We can't guarantee these colors—you know German dyes cannot be had," or when they find goods marked, "Colors not guaranteed," it is all German propaganda, subtle, persistent, tenacious, with the ultimate object of preserving to Germany a monopoly of the dyesutff industry, so closely allied with munition making. American dye manufacturers find themselves still contending with the craftiest intrigue, that plots the creation of distrust of American-made dyes or incendiarism with equal facility.

"Distillation of coal tar is part of the exact science of chemistry, and American, or English, or French, or Italian, or Japanese chemists can be as much masters of the dye extracting processes as Germans. There is no mysterious alchemy about dye making that only German supermen can comprehend. A little reflection by the American public would kill this German trade propaganda, to which patriotic American business and salespeople are unwittingly giving aid.

"1. There never has been such a thing as an absolutely fast dye, fast to all conditions and tests on all materials. There are dyes fast to washing, but not to light, and dyes fast to light and not to washing.

"2. Before the war German dyes were sold with the legend in the container, 'Sold without guarantee.'

"3. American dyes are as fast, class for class, as German dyes, for color chemistry is as exact in America as in Mitteleuropa.

"4. For American merchants and sales folk to tell customers that colors cannot be guaranteed because German dyes are unobtainable is just what German dye makers and exporters want American business people to say and American consumers to believe. Patriotic business folk must realize that in deprecating American dyes they are creating a widespread distrust that may react in Germany's favor for a generation.

"5. For approximately two years after the war began mill men used any dye they could get, often for purposes for which the dye was unsuited. That is the explanation of such fading as has troubled purchasers of goods. There are now plenty of dyes, each for its own purposes, and all getting cheaper."

The German propaganda that is spreading distrust of American dyes is only one of many reasons why the aniline dye manufacturers and dealers are mobilizing their personnel and resources for united trade defense and offense. Their plan is to co-operate as a body of American Businessmen against the foreign commercial aggression they expect with the coming of peace. We anticipate that the respite afforded American, French, English, and Italian dye manufacturers and dealers may be used to weld a formidable organization with which to oppose the German monopoly when peace time competition returns.

Perfection of manufacturing in bulk production and in specialties was but one feature of the Germany dye combination. "It must not be forgotten that the Germans had built up a selling, credit, and banking organization throughout the world comparable in thoroughness and efficiency to that of the Standard Oil Company. While American dye manufacturers have been making rapid progress in building up their industry, manufacturers in the countries allied with the United States have been similarly engaged. In the future American dye men may have to decide whether to engage in a cut-throat competition with Germany and with our national allies, including the government supervised dye industries of France and Italy. Such questions must be worked out in a series of trade conventions.

The English dye manufacturing trade is in much the same condition as the American industry in that it has had a mushroom growth without time for the establishment of trade standards. The English manufacturers have been contemplating the formation of a trade organization and may hold their convention this month. S. A. T. Whetmore, director of British Dyes, Ltd., who, on a recent visit to the United States, learned of the prospective convention of American dye men, announced that upon his return to England he would call a meeting of the British manufacturers. The British trade is closely watching dye developments in this country.

About 200 of the leading dye manufacturers and dealers of the United States and Canada have sent word that they will be represented at the initial convention of the dye trade. The element within the trade which is promoting the convention wants to establish a permanent organization in the form of a national dyestuffs trade association with an educational and co-operative purpose, and, more specificially, to bring about through such association and through committee work a national color standard, a tribunal of chemists and businessmen to arbitrate the disputes in the trades, standard contract forms and interpretations of contract provisions, formulate a trade policy with reference to enemy-owned patents, and voice the consensus of the trade on tariff schedules and freight rate classifications.

The value of a standardization of colors to the general public may be realized when it is known that the spectrum may be divided, for commercial purposes, into approximately 3,000 shades. Under existing trade conditions each manufacturer sets forth his own color standard, and each retailer carries such shades as he thinks best. With a national color standard a customer on the Pacific Coast or in New York, could order by the accepted designation a colored fabric and be sure of getting what was ordered. At present a shopper in a department store may purchase dress goods and then be unable to match trimmings, buttons and thread in other departments of the same store. An established color standard would enable her to order by designation the desired colors, of exact, approximate, or contrasting effects.

Even in "very staple" colors, like navy blue, one manufacturer's conception of navy blue will have a green cast; another manufacturer's will have a purple cast. For the War and Navy Departments the designation of exact shades and colors has been very perplexing. There are more than a dozen official colors which are now mostly established by sample. Great simplification would result if there existed accepted designations for "Kahki," "Olive Drab," for "West Point," "Marine," "Annapolis,' ' "Midnight," "Infantry," "Liberty," "Glory," "Flag," "Wireless" and other blues, for "Artillery" and "Ambulance" reds, and for "Cavalry yellow," and "Service Corps Green."

Innumerable disputes have arisen in the disorganized though rapidly expanding dye trade. These disputes have been taken to court to be laboriously adjudicted by legal methods. The settlement of these disputes by a tribunal of chemists and businessmen is considered a parallel activity within the establishment of a color standard.

AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

Circulating Wherever Dyestuffs are Used

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A Forethought of the Convention

As has been previously announced, the dyestuff manufacturers, dealers and contributing interests will meet at the Chemists' Club, 50 East 41st Street, New York City, on January 22d and 23d, for the purpose of forming a permanent organization.

OFFICIAL

PROGRAM

of the meeting of

AMERICAN DYESTUFF MANUFACTURERS

will be found in this issue on Pages 9-12

Many of our readers will be present, most of them going without any concrete plan of action and susceptible of having their votes diverted by the most able speaker and of later finding themselves committed and bound by some regulations that may be regretted later.

The first thoughts of the plan made it appear that everything would move swiftly and a perfectly ideal association would be the result. Indeed, it should, if it were not that they may be a disposition to favor individual interests rather than the good of the whole body.

We urge that all in attendance keep always in mind that every measure brought before the body for a vote shall be carefully analyzed and that the unspoken words of that great body—the consumer—be added to the speeches made on the floor, so that the greatest good shall be obtained for all rather than the furtherance of any private interest.

Let us take a few practical instances. Certain technical journals desire to have their publications designated as the official organ of the association. We know how much this would benefit the journal so designated, but there is a reasonable doubt as to the general benefit to the dye industry or the general spread of information to the consumer by a concentration of all the news in one paper. Would it not be better to defer such an action for a year at least and then reward the paper that had given the greatest service? This point is sure to come before the newly formed association and it is worthy of some previous thought.

Another point of highest importance is in the office of Secretary. This is an office not to be lightly bestowed as a compliment, but is the most important position in the association. It requires a variety of super-man—one who is be-

yond reproach, a man of wide knowledge in the many ramifications of the business, a tireless worker, a diplomat, a man of keen business foresight backed by experience, a man with a record of accomplishments. Anything short of such qualifications will undo the work of the whole organization. We wish we knew such a man to put forward as a candidate, but, as we do not, can simply protest against the selection of a mere good fellow who needs the job.

The question of standards will meet with opposition, because they are contrary to private interests in some cases. We feel that if the Committee on Standards and Testing are given general instructions and full power to act they will be able to work out the problems. If they are hampered in their work by special instructions and limited power, the only result can be a disappointment for the industry at large.

And so throughout the program, let personal interests be forgotten in an effort to benefit the whole. The intent of an association is to maintain simply a general jurisdiction over its members and not to be burdened with trifling details. There are two aims to be kept in mind—the relation to each other and the relation to the consumer. The first is necessary from the point of general welfare and the second is necessary for the same reason. It is only by having the moral support of the consumer that the association can be expected to withstand the foreign competition that will follow the war. If the organization is contrary to their interests it will not be long before they become aware of it and the very ends for which it was formed will be defeated.

INQUIRY DEPARTMENT

In the establishment of this department it is our desire to help the consumer in buying his products direct from the manufacturer or reliable dealer. Accordingly all questions relative to source of supply will be answered to the best of our ability in an impartial way.

Furthermore, we propose to help in any difficulties that consumers may be having with dyes and chemical products providing that questions do not involve simply tests, which can be readily obtained from those who specialize in such work.

We hope that the consumer will not hesitate in making use of the department, for all questions relative to processes, etc., will receive the personal attention of a chemist who is fully qualified to handle the subject.

Acid Wool Dyes on Cotton

Question—Is there any advantage in dyeing acid wool dyes on cotton yarns, and what is the best process?

Answer—The principal advantage is in being able to produce bright level shades at low cost, but this is greatly offset by the lack of fastness to washing and cracking. Almost all of the acid dyes will produce fairly good shades on cotton when dyed at 140° F. in a short bath with 10% Glauber salt and 5% alum. The dyeings should not be rinsed, but are evenly whizzed, otherwise they will dry streaky. Certain acid dyes, like Crocein scarlets and oranges, Azo yellow, Metanil yellow, Soluble Blue and Nigrosine, are better than others. It is best to confine their use to light shades, as the heavier tones are too likely to rub. When bright, heavy tones are needed it is more practical to use basic dyes on a tannin mordant or direct colors topped with basic dyes.

Should a Chrome Color be Dyed on a Chrome Mordant or be After-Chromed

Question—Does it make any difference in the shade or fastness of a chrome color, whether it is dyed on a chrome mordant or after-chromed?

Answer—There are only a few chrome dyes which work equal well both ways. If the dye is a true alizarine it may only be dyed on a chrome mordant and a few others, like Galiocyanine, follow this rule. Blacks which develop from a reddish tone to a full black by after-chroming either will not dye a good shade on a chrome mordant or else are not fast when so dyed.

The yellows and browns vary according to the individual dyes, and those which dye both ways generally yield a more brilliant shade by after-chroming. No rule in these cases is a safe one to follow; it is better to test the fastness, as, often, a very fast dye, when dyed in the wrong way, will be found quite deficient in fastness.

Names of Dyestuffs

When the first coal-tar dyestuff was made it was soon discovered that its true chemical name was far too unwieldy for commercial use, and a much more simple name was an immediate necessity. Mauve or Perkin's Violet was adopted, and since then it has been customary to select the name of a dye without any intent to reveal the chemical composition of the material, but merely for purposes of identification.

In the early days of the industry the names were selected more fancifully after flowers, etc., to give some idea of the actual shade of the dyes; thus we have Phloxine, Rose Bengal, Safranine, Mimosa, Dahlia, Gentianine, Carthamine and many others whose names indicate a flower of approximately the hue of the dye.

Eosine, from the Greek Eos, the blush of dawn, is another descriptive name.

Then we have the semi-scientific names that reveal little—Methylene blue, Benzo Purpurine, Metanil yellow, Resorcin yellow, and others which give a flavor of deep science to the color, but no idea of the actual shade produced.

Another class of complimentary names, like Bismark brown, Victoria blue, Chicago blue, Zambesi black, Congo red, are even more devoid of meaning. We might follow these with Algol blue, Ciba violet and such names as are merely proprietary and which give no clue as to the tone of color, composition or method of application.

Various types are designated by letters which vary according to the manufacturer, thus: Patent Blue V refers to V as *vert* (green) rather than *violet*. Auramine G uses the G as *grün,* while Rhodamine G evidently considers it as *gelb.* S generally denotes superior solubility, but is used rather loosely. B's and R's are added to the name liberally and serve best to distinguish between different members of the same series.

Unfortunately, there never has been any uniformity in color nomenclature, and the classification of dyes according to shades can only be made by having actual familiarity with the separate dyestuffs. It would be desirable if a system could be devised allowing the use of suitable descriptive names and letters which would modify them in a way that the consumer would have a better idea of the color. The original floral and descriptive names are still available, but need some restrictions. Cherry red and rose do not fix any definite color in our minds, but names like Malachite, Turquoise, Sulphur, Ruby, Cobalt, Myrtle and others of similar character fix in our mind a well-known color. The initials of the spectral colors, V, B, G, Y, O and R, with S for *shade,* could be repeated as often as necessary and be used to define more exactly the shade produced by a new dye.

We note that the textile interests have adopted a sample card which endeavors to give them new shades and names by which to call them. Unfortunately, these are mostly combination or fancy colors, while dyes mostly are simple tones. Perhaps some genius will evolve an idea that can be used to apply to dyestuffs and give a little better idea of the character of the color by its name. We expect in the near future to see many new dyes invented by Americans, of which we never heard before, but let us hope that instead of naming them, like cigars, after popular heroes, they will be so designated that they will be much more easily recognized.

The German Dye Syndicate

The *Frankfurter Zeitung* announces a further large increase in the nominal capital of the German Dye Syndicate. In the summer of 1916 all the important dye manufacturing concerns were amalgamated, and the nominal combined capital of $60,000,000 is now to be increased to $100,000,000. It is also stated that this increase by no means covers the actual expenditure on the expansion of the works during the war, and that a large additional sum will be provided by the German Government.

The utmost determination to maintain German predominance in dye production is still expressed, and it is stated that the chemical industry has played a most important part in the extraordinary striking force which Germany has developed in the world war. During the war very special tasks have fallen to the chemical industry, and it has been able to solve them because of its brilliant productive efficiency, its manufacturing and financial strength and the great adaptability of its works.

While the foreign connections have apparently been broken, there is no doubt still a nucleus in this country, as well as other points, around which an active selling organization can be rebuilt in a short time. The great achievements of our chemists since the war must be made still greater if we are to be able to successfully combat this great power which will certainly be used against us. This is no time for self-congratulation; we must get ready to meet competition. Armies can be drafted and trained in a short time, but a mighty business requires skill and capital, and there is little hope for our success if we expect to meet the coming commercial army with a few unorganized skirmishers. We trust the new association will put us in a better position.

American Dyestuff Manufacturers

The Following List of Manufacturers Appeared in the Annual Review Number of the Textile World Journal and Full Credit Is Given This Publication

American Tar Products Co., 203 South La Salle street, Chicago, Ill. (naphthalene—crude flakes). (Plants in six different cities.)

Baird & McGuire, Holbrook, Mass. (cresol compounds).

Bayway Chemical Co., Bayway, Elizabeth, N. J. (benzol, toluol, xylol, solvent naphtha; naphthalene, flake and crude; cresylic acid).

C. G. Betts Co., Erie and N. P. Tracks, Spokane, Wash. (naphthalene, flake; crude benzol; carbolic oil—about 15 per cent phenol and cresol).

Samuel Cabot, Inc., 141 Milk street, Boston, Mass. Factory: Chelsea, Mass. (crude benzol, toluol, pure naphthalene).

Chatfield Manufacturing Co., Cincinnati, Ohio (naphthalene — balls and crystals; carbolic acid).

Merck & Co., 45 Park Place, New York, N. Y. (affiliated with The Rahway Coal Tar Products Co., Rahway, N. J.). Branches: St. Louis, Mo.; Montreal, Canada. Factory: Rahway, N. J. (benzol — pure, 90 per cent, 50 per cent; toluol—pure, 90 per cent; xylol, cumol, solvent and heavy naphthas, carbolic acid).

Nebraska Blaugas Co., Twenty-eighth and Boyd streets, Omaha, Neb. (amylene—part benzol).

New Haven Gas Light Co., 80 Crown street, New Haven, Conn. (benzol—90 per cent water white; commercial toluol; crude naphthalene).

Pittsburgh By-Products Coke Co. (H. Koppers Co.), Pittsburgh, Pa. Factories: Camden and Jersey City, N. J.; St. Paul, Minn. (benzol, toluol, naphthalene). Camden plant now in operation, Jersey City will be about June 1 and St. Paul about September 1, 1918.

Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

Union Chemical & Refining Co., Box 974, Johnstown, Pa. (naphthalene, flake).

United Gas Light Improvement Co., Philadelphia, Pa.

Intermediates

Acme Dye & Chemical Co., Durham avenue, Metuchen, N. J. (beta-naphthol; contemplate the manufacture of trinitrophenol).

American Color Manufacturing Co., 98 Park Place, New York, N. Y. Factory: Passaic, N. J. (beta-naphthol, Schaeffer's Salt, nitrosodimethyl-aniline).

American Synthetic Color Co., Stamford, Conn. (aniline and other intermediates).

Atlantic Dyestuff Co., 88 Ames building, Boston, Mass. Factory: Burrage, Mass. (dinitro-phenol, dinitrochlor-benzol).

Bayway Chemical Co., Bayway, Elizabeth, N. J. (cresol, orthotechnical and meta-para; xylenol).

Bound Brook Chemical Corporation, 82 Beaver street, New York, N. Y. Factory: Somerville, N. J. (Just starting to manufacture salicylic acid).

California Aniline & Chemical Co. (California Ink Co.), West Berkeley, Cal. Branches: Seattle, Portland, San Francisco and Los Angeles (p-nitraniline, monosulphonic acid. Pharmaceuticals: bromo acid, eosine).

Catalytic Chemical Co., Third and Bancroft streets, West Berkeley, Cal. (phthalic acid and anhydride; phenolphthalein; bases of all dyes of the following groups: eosines, rhodamines, erythrosines, galleines, rose bengales, indigo and indigotines. Also bases of vanillin, saccharin and all other derivates of the sulphonates of the benzene nucleus ring).

Columbia Chemical Constructive Co., Fort Washington, Pa. (aniline, oil and salt; nitraniline, nitro- and dinitrophenol, metol, diamidophenol sulphate, p-amidophenol. Pharmaceuticals: acetanilid, guaiacol, phenacetin, pyrocatechin, etc.). Will be in operation in April, 1917.

General Chemical Co., 25 Broad street, New York, N. Y. Factory: Easton, Pa. (allied with Benzol Products Co.) (diphenylamine, dimethyl-aniline and hydroquinone on a large scale; ben-

(*Continued on page* 14)

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ELISHA HEWITT, Secretary and Treasurer

Myron Drew Reeser, Managing Editor

The Future Outlook for the Dyestuff Industry

We may divide dyestuff factories of the present time roughly into two classes—those who are only intent on making as much money as possible at present and do not care whether they scrap their plant after the war or not, and the other class who are trying to build up a business on a firm foundation and fight it out with the Germans after peace is declared. Not only will there be a commercial war with our present military foes but the entrance of the highly capitalized explosives companies and, it is hinted, the oil interests will make a great deal of competition that can only result in one way—the survival of the fittest.

During this period we are enjoying a season of good profits and have nothing to fear from foreign competition. Those of us who were in the business before the war know what that competition means; it was the forerunner of "schrecklichkeit" and we cannot be too sure that it will follow the kaiser to St. Helena, Siberia or Isle du Diable—whichever they decide upon. Now we have a chance to build our fences, dig our commercial trenches and drill our forces for the commercial war that is inevitable. We will have in addition to the German dyes, who are now firmly consolidated, the Swiss and the government-fostered British factories operating under suspended German patents and subsidized by their government. After the war they will not be able to dispose of the entire output at home and we may expect to see them offered here.

Some of the small factories frankly say that they expect to quit soon after peace is declared, because with the inadequate support from our own country their capital will not be sufficient to keep up the fight. This same reason (not expressed, however) has much to do with the reluctance of the larger factories to take up the more complicated processes and make the higher priced colors. There is a chance of holding out with the staple dyes, but if foreign firms are to be permitted to hold American patents, deny us shop rights, and pay only a nominal duty, which is to diminish year by year, capital is foolish indeed to invest in an uncertainty when business can be had now and money made on the common staples.

In order to prepare for all forms of competition, fair and unfair, it is not too early to start now. Those who are comparatively new in the business must not think that selling dyestuff means only advertising, sending out lists of samples and then deciding what part of the orders received shall be filled. It does not mean that the customers will be so considerate that they will accept any plausible explanation regarding some slight deficiency in the colors. It means, if the past is any guide for the future, that a great deal of good money will have to be spent in advertising, in salaries for the highest class of salesmen, in large expense accounts for these salesmen, in sample cards, in a laboratory for special work to be done for the customers and in control of the output, beside demonstrators to assist the salesmen, not to mention many other unlisted incidentals. All this will be required because the competition will have this equipment, and experience beside. Then with all this the salesmen will work day and night to land a single customer, and customers, where the demonstrator has worked for weeks to show them how to use a new dye or process, will be found to place their next order with another house on account of a difference of a cent or two a pound in price. (If it were not that innocent parties would be compromised we could give several actual cases supporting this statement.)

The only way that the new business can be held in the face of such competition as we may expect is by service. Our products must be equal in every way; they are now often superior, but the deliveries must be kept absolutely uniform.

PROGRAM

◆

CONVENTION OF AMERICAN DYESTUFF MANUFACTURERS

◆

DEVOTED TO THE
FURTHERANCE OF THE
DYESTUFF INDUSTRY
in
AMERICA.

◆

THE CHEMISTS' CLUB,
NEW YORK CITY.

◆

JANUARY THE TWENTY-
SECOND AND TWENTY-
THIRD, NINETEEN
HUNDRED EIGHTEEN

The following order of business is suggested

Call to Order

Election of Chairman of Convention.

Election of Secretary of Convention.

Election of Treasurer of Convention.

Statement of Objects of Convention.

Brief Addresses and Discussion.

Motion to Form Association.

Appointment of Committee to Organize Association.

Reading of Resolutions.

General Discussion.

Those who have consented to deliver brief addresses are

D. Allen Rogers,
(*Pratt Institute*)
STANDARDIZATION.

Bradford Webster,
ARBITRATION.

A. E. Parker,
PATENT LAWS.

Dr. Grinnell Jones,
(Tariff Commission)
TARIFF.

Dr. E. W. Pierce,
(U. S. Conditioning & Testing Co.)
(Subject not announced.)

NO definite program for this meeting has been attempted, and the ultimate developments will be entirely in the hands of those present at the conference. It is hoped, however, that gentlemen present will be prepared to make suggestions, to discuss questions affecting the industry, such as the tariff, arbitration of disputes, etc., as well as the question of the standardization of colors, and that a full and free interchange of ideas looking to the permanent intrenching of the industry may be obtained.

American Dyestuff Manufacturers

(*Continued from page* 7)

zidine, sulphanilic acid, diethyl-aniline, tolidine, paranitro-phenol, orthonitrophenol, paramidophenol, dianisidine and o-nitroanisol on a semi-commercial scale —permanent processes in course of development).

Hord Color Products Co., 424 East Market street, Sandusky, Ohio (a-naphthol, benzoate of soda, benzoic acid). In operation.

Jacksonville Chemical Manufacturing Co., Jacksonville, Fla. (dinitro-naphthalene).

Merck & Co. (affiliated with The Rahway Coal Tar Products Co., Rahway, N. J.), 45 Park Place, New York, N. Y. Branches: St. Louis, Mo.; Montreal, Canada (salicylic acid and salicylates, aniline oil, aniline hydrochloride, benzonaphthol, hydroquinone, m-dinitrobenzol, nitrobenzol, p-nitraniline. Also pharmaceuticals: acetanilid and in course of development: acetphenetidin, resorcin; and sulphocarbolates of calcium, sodium and zinc).

Merrimac Chemical Co., 40 Central street, Boston, Mass. Factory; Woburn, Mass. (H-acid).

Monroe Color & Chemical Co., Quincy, Ill. (dinitro-benzol, m-phenylenediamine, benzidine and sulphate paste, H-acid). Increasing output soon.

Newport Chemical Works, Inc., 1112 First National Bank building, Milwaukee, Wis. (allied to Newport Hydro Carbon Co.). Branch: 1605 Equitable building, New York, N. Y. Factory: Carrollville, Wis. (a-naphthylamine, dinitronaphthalene; ortho- and p-nitrotoluol; ortho- and p-toluidine; tolidine).

New York Color & Chemical Co., Inc., 212 Pearl street, New York, N. Y. Factory: Camden, N. J. (b-naphthol, p-nitraniline and anilines for lake-making).

The Obex Co., Marietta, Ohio. Factory: East Norwood, Marietta, Ohio. (aniline; will be making four products within 30 days). Operating day and night.

Organic Products Corporation, Schenectady, N. Y. (betanaphthyl benzoate).

Geo. H. Segal & Co., Inc., 95 William street, New York, N. Y. (benzoic acid, benzylchloride, benzol-naphthol).

Transatlantic Chemical Corporation, 80 Wall street, New York, N. Y. Factory: Linden, N. J. (m-nitro-p-toluidine, p-nitrotoluol, p-toluidine, tolidine).

United Dyes Corporation, Front street, Perth Amboy, N. J. Branch, 6 Church street, New York, N. Y. (H-acid).

Upton Bros., Bristol, Ind. (aniline).

West Coast Chemical Co., 6961 Woodlawn avenue, Seattle, Wash. (salicylic acid, alpha-naphthylamine).

H. R. Ackerman Co., 65 Fulton street, New York, N. Y. (Concentrated Jacque and Geranium Lakes, Green, Yellow, Orange and Violet Lakes, Cerulean and Alkali Blue Lakes; Prussian Blues, Nigrosines, Acid Black 4BX).

Acme Dyestuff & Chemical Co., Durham avenue, Metuchen, N. J. (Will manufacture acid black and other acid colors).

Alliance Chemical Co., 176 Federal street, Boston, Mass. Factory: Hyde

Park, Mass. (Sulphur black, fast red A, Direct colors: orange, yellow).

Althouse Chemical Co., 500 Pear street, Reading, Pa. (Congo red 4 B, chrysamine G; may undertake manufacture of chrysophenine, benzo violet R, benzo purpurine 10 B, diamine black B H).

American Color Mfg. Co., 98 Park Place, New York, N. Y. (Oil colors: Yellow, orange, mahogany, scarlet; also fast silk gray, acid red 4 B).

Atlantic Dyestuff Co., 88 Ames building, Boston, Mass. (Sulphur black D extra on a large scale; direct blue, cotton green, chrysamine).

Beaverkill Dye Works, Cooks Falls, N. Y. (Alizarine yellow R, naphthol green B, gambinine R & Y, opal blue, direct blue, cloth scarlet G, orange 11, sulphur colors).

Bick & Undy, 49 S. Front street, Philadelphia, Pa. (Acid colors: Orange, scarelt; fuchsine, Congo red, methylene blue, direct yellow).

Binney & Smith Co., 81 Fulton street, New York, N. Y. (Soluble black B 1—a substitute for nigrosine in leather dyeing).

Block Chemical Co., 67 Fifth avenue, New York, N. Y. Acid colors: Brown, orange 2 A, scarlet; direct colors: blue, fast red, orange; lake and chrome colors; nigrosines, water and spirit soluble; para reds; Prussian blues; induline and methyline blues; indigotine, Congo red, scarlet 2 R, Bismarck brown R & Y, methyl violet).

Brunswick Chemical Co., Newark, N. J. (Recently incorporated, $200,000.)

Butler Chemical Co., 25 Beaver street, New York, N. Y. Factory: Butler, N. J. (Basic reds, greens, blues; also fuchsine).

California Aniline & Chemical Co. (or California Ink Co.), West Berkeley, Cal. (Lithol red M. M. N. P. T. red).

Camden Chemical Co., 42 Broadway, New York, N. Y. Factory: Camden, N. J. (Acid and direct colors).

Catalytic Chemical Co., Third and Bancroft streets, West Berkeley, Cal. (Basis of following color groups: Eosines, rhodamines, erythrosines, galleines, rose bengales, indigo, indigotines). Factory being steadily enlarged.

Chemical Manufacturing Co., 46 Gold street, New York, N. Y. (Nigrosines).

Chrome Color Works, Mattawan, N. J.

Commonwealth Color & Chemical Co., Butler street, Brooklyn, N. Y.

Connecticut Color Co. (A. E. Beauregard), Danielson, Conn. (Bright acid green, for silk or wool).

Continental Chemical Co., 418 North Third street, St. Louis, Mo. (Methylene blue, methyl violet on a small scale).

Cosmic Aniline Works, 8 West Broadway, New York, N. Y. (Malachite green).

Drug & Dyestuff Corporation, 120 Broadway, New York, N. Y. Factory: Burrage, Mass.; West Nutley, N. J. (Sulphur browns and blacks, chrysoidine, chrysamine G; direct colors, green, blue 2 B. Developing various other colors).

Dye Products & Chemical Co., Inc., 200 Fifth avenue, New York, N. Y. (Bismarck brown R & Y, and chrysoidine R & Y on a large scale; naphthol green, fast acid red. Production of direct cotton colors contemplated).

Eagle Color & Chemical Co., 4 Cedar street, New York, N. Y. Factory: Newark, N. J. (Sulphur black).

Fleming Chemical Co., Cleveland, O. (Prussian blue. Dry colors contemplated).

Fulmer & Apeldorn, 23 South Ninth street, Philadelphia, Pa. (Specializing on fuchsine. Expect soon to be able to supply other colors, including Anthraquinone green, patent blue, soluble aniline, blue and green crystals, brilliant alizarine rubinol, etc.).

Haack & Co., 800 Broad street, Newark, N. J. (New corporation to make aniline colors).

Hellenic Chemical & Color Co., Inc., 427 West Thirteenth street, New York, N. Y. (Nigrosines).

Hoffman & Kropf Chemical Co., Meeker and Porter avenues, Brooklyn, N. Y. (Sulphur black).

Holland Aniline Co., 118 W. Kinzie street, Chicago; and Holland, Mich. (Bismarck brown, methylene blue, methyl violet, acid colors, sulphur colors, etc.).

Holliday-Kemp Co., Inc., 90 William street, New York, N. Y. Branches: 151 N. Front street, Philadelphia; 114 State street, Boston, Mass. Factory: Woodside, Long Island, N. Y. (Acid, chrome and direct colors).

Hord Color Products Co., 424 E. Market street, Sandusky, O. (J. K. Britton, Treas.). (Naphthol yellow S. In operation).

Independence Aniline & Refining Co., Independence, Mo. (Incorporated for $1,000,000 to make aniline colors).

Independent Chemical Co., 72 Front

street, New York, N. Y. Factory: Bound Brook, N. J. (Primuline, etc.).

International Color & Chemical Co., 570 Franklin street, Detroit, Mich. (Mineral colors only).

Iridescent Dyestuff & Chemical Co., 247 Bush street, Brooklyn, N. Y.

Jacksonville Chemical Manufacturing Co., Jacksonville, Fla. (Sulphur colors: Black, brown, tan, yellow. Starting manufacture of sulphur green and direct blue).

Louis Jaeck Co., 257 Front street, New York, N. Y. Factory: Brooklyn, N. Y.

Keystone Dyestuff & Chemical Co., 671 Broad street, Newark, N. J. (New company).

L. & R. Organic Products Co., Inc., 8 Gold street, New York, N. Y. Factory: 833 Magnolia avenue, Elizabeth, N. J. (Specialty, nigrosine base and nigrosines, spirit, water and oil soluble. Preparing to make other aniline colors, particularly blacks and blues).

Lansing Chemical Co., Lansing, Mich.

Mackey Wood Aniline Co., Inc., Haledon, N. J. (Chrysoidine, fast red, etc.).

Melrose Chemical Co., Essex street, Melrose, Mass. (Indulines. Various blues).

Merck & Co., 45 Park Place, New York, N. Y. (Nigrosines, on large scale.)

Monroe Color & Chemical Co., Quincey, Ill. (Bismarck brown Y & R; and direct black for cotton, on a large scale. Will produce benzo purpurine 4 B, benzo sky blue, a direct green and a navy blue, but it will take some time to complete arrangement so production is assured).

Mont Color & Chemical Co. (Swift Chemical Co.), 90 Wall street, New York, N. Y. (Chrysoidine, Bismarck brown).

New York Color & Chemical Co., 212 Pearl street, New York, N. Y. (Brilliant lake scarlet, Bordeaux B, acid orange A, tartrazine, methylene blue, auramine).

Organic Products Corporation, Schenectady, N. Y. (Croceine orange, oil yellow, scarlet 2 R. Contemplate making Victoria blue 4 R, wool green S).

Peerless Color Co., Bound Brook, N. J. (Primuline, and direct cotton dyes derived from or related to it. Fast yellow B, union pink, etc.).

Pennsylvania Color Manufacturing Co., 248 Chestnut street, Philadelphia, Pa. (Chrome colors; nigrosine for wool).

Perolin Co. of America, Woolworth building, New York. Factory: Paterson, N. J.; and Chicago, Ill. (Sulphur black).

Philadelphia Aniline & Extract Co., Bourse building, Philadelphia, Pa. (Sulphur black).

Reliance Aniline & Chemical Co., 100 Broadway, New York, N. Y. Factory: 24 Vanderbilt avenue, Brooklyn, N. Y. (Methylene blue).

Saxe Chemical Co., 99 Nassau street, New York, N. Y. (Methylene blue, Bismarck brown).

Geo. H. Segal & Co., 95 William street, New York, N. Y. (Sulphur black, nigrosines, Bismarck brown, methyl violet).

Simeon & Elting, 93 Nassau street, New York, N. Y. Factory: Irvington, N. J. (Yellow lakes; colors for paper).

Standard Color Works, 55 Liberty street, New York, N. Y. Factory: Brooklyn. (Bismarck brown Y, acid black, nigrosine crystals WS, induline crystals WS, Prussian blues, chrome yellow CP, Methyl violet, Methyl violet base, Chinese blue CP, etc.).

Synthetic Products Co., Inc., 447 Olive street, North Tonawanda, N. Y. (Primuline).

Transatlantic Chemical Corporation, 80 Wall street, New York, N. Y. (Investigating with view to manufacturing colors. (See Intermediates).

West Coast Chemical Co., 6961 Woodlawn avenue, Seattle, Wash. (Sulphur black in considerable quantities).

Westover Chemical Co., Pennington, N. J. (Sulphur and other colors).

Mineral Dyes

Milson Dye & Chemical Co., 602 Continental building, Baltimore, Md. ("Antholine" dyes for wool, 76 standard shades produced by John R. Milson process based on the use of certain minerals).

Vegetable Dyes and Extracts

Baltic Chemical Co., 183 Duane street, New York, N. Y. Factory: Yonkers, N. Y. (Dyewood products. Exports a specialty).

Binney & Smith Co., 81 Fulton street, New York, N. Y. Factory: Easton, Pa. (Vegetable blacks).

Hub Dyestuff & Chemical Co., 595 East Seventh street, South Boston, Mass. (Logwood steam black grays, vegetable yellows, browns, etc., for calico printing, yarns, and warps. Special logwood blue and special mordant for woolen dyeing).

John H. Heald & Co., Inc., Lynchburg, Va. Branch office: East Radford, Va. (Logwood, hematine, hypernic, fustic, osage orange, and quercitron bark extracts. Also tanning extracts from chestnut wood, chestnut bark, and hemlock bark).

(*This list of manufacturers will be continued in the next issue.*)

An Inquiry for Smalts

We are in receipt of a letter from a large paper manufacturer asking us for information as to an American source of smalts, a powdered Cobalt Glass used by the English for tinting white paper.

We have been unable to obtain definite information regarding this product and will appreciate the attention of manufacturers.—*Editor.*

Foreign Trade Inquiry

A letter has been received from South America asking for advice that will enable the writer to obtain Sulfoline.

He also wants to obtain a good softener that can be recommended by cotton goods manufacturers, especially percales. The request reads, "something in the way of a softener which gives the goods more lustre and a softer appearance in the finish."

AMERICAN
DYESTUFF REPORTER

A Weekly Publication devoted to
DYESTUFFS, COLORS and ALLIED CHEMICALS
Circulating Wherever Dyestuffs are Used

Vol. I New York, January 28th, 1918 No. 17

The Complete Success of the Proposed Association of American Dyestuff Manufacturers is Assured.

This statement to some may sound premature but could the skeptical ones have sat with the writer through the interesting hours of the Conference, there is no question that they too would be enthusiastic. From the time of the opening of the meeting at 10:30 on the morning of January 22nd until the end at 1:30 Wednesday afternoon, there was evident to a surprising degree, a spirit of mutual co-operation. The absence of antagonistic feeling and trade rivalry was indeed most surprising.

There were a few manufacturers, known personally by the writer, who attended this Conference merely to protect their own interests and not with the intention of co-operating for the good of all. We were in conversation with one of these gentlemen a few hours previous to the meeting and a brief summarization of his remarks follows:

> "You can't make American manufacturers come together. The thought of a standardization of their products is both foolish and absurd. The American manufacturer cannot guarantee regularity of his products because of unreliable help and many other reasons which are known only to manufacturers."

The same manufacturer was approached after the Conference and an expression of his opinion was again asked, and judging from his reply, his attitude had changed, for he said:

> "Well, things certainly did go along smoothly and I for one am perfectly satisfied. If I had been told that so many manufacturers could meet together in one room and the meeting not end in a quarrel, I would have believed it impossible."

This statement voices the opinion of those present, for one and all they were unanimous in saying that they were perfectly satisfied.

There is, however, much yet to be accomplished and the issue of paramount importance received too little attention; that is, the permanent establishment of a standardization bureau. We feel that the committee, now acting temporarily, should concentrate upon this and suggest that at the next meeting more time be devoted to standardization and less to the choosing of a trade name for the association.

However, it is not our intention to make suggestions to the committee but to outline to consumers of dyestuffs the interesting points and important addresses of the convention.

Official Report of the Convention of Dyestuff Manufacturers

When the doors of the Conference room were closed at 10:50 there were present one hundred and four representatives of companies interested in the future of the dyestuff industry in America. Promptly at 11 o'clock, Mr. H. Gardner McKerrow took the platform and in a

short, well-delivered address outlined his views regarding the proper procedure for economizing valuable time. Mr. McKerrow took but a few moments to deliver his opening address and then suggested that those present elect a temporary chairman and secretary. Mr. Frank Heminway was proposed and elected unanimously.

We might remark that few men engaged in the dyestuff industry possess the diplomatic capability and the pleasing personality of Mr. Heminway.

Mr. C. Cyril Bennett, who is connected with a trade publication, was proposed for temporary secretary and elected.

Mr. Charles Jenkinson of the National City Bank of New York was elected treasurer and certainly no one could have handled the financial end of the conference more thoroughly than Mr. Jenkinson. The quiet manner in which he went about his duties spoke well of his systematic training.

When the temporary committee had taken the platform, Mr. Heminway introduced Mr. Benjamin H. Kaye, a lawyer of this city, who had devoted much time to forming a workable plan for the convention. Mr. Heminway then delivered the following address:

Mr. Heminway, Chairman of the Convention

The gentlemen who insisted upon my acting as temporary chairman today have been frank enough to say that they want me because I do not count for anything in the industry, anyhow, and yet know a little something about it. It was thought dangerous to have, as the presiding officer here today, an important man representing any particular manufacturing interest, for fear the meeting as a whole should gather the impression that any large interest or interests proposed to run either this convention, or determine the policy of the National Dyestuff Association, when formed, and, to an extent, I think they were right.

If today you elect to form an association which you may or may not choose to call the National Dyestuffs Association, or the Dyestuffs Association of America,—and, by the way, the latter is preferable for the initials of the former are identical with those of the National Druggists Association,—above all things you must bring about an organization which is for the benefit of the industry as a whole and for all reputable manufacturers and merchants engaged in it, without regard to their size or importance; but with a very strict regard, on the other hand, to their repute and the seriousness and earnestness of their efforts.

It is too bad that at the outset I am forced to say something which may not be very pleasant to Mr. McKerrow. I feel than the entire industry is very deeply indebted, indeed, to Mr. McKerrow for what he has already done in waking us all up to the crying need for development of some organized co-operative effort. Mr. McKerrow has been so impressed with the necessity of standardization of products that he has called particular attention to this feature, and I think created the impression among many of you that the main function of the association, if formed, will be the standardization of dyestuffs.

He may set me right on this point later, but I think that Mr. McKerrow realizes that standardization is but one of the functions of an association, and by no means, the most important. And, now gentlemen, I am going to say something to you all that will probably be horribly criticized, or lead you to believe that I have been associating with the Bolsheviki, and that is, that valuable as the formal procedure and official acts of a business association may be, they count for little as compared with the fact that the members of the association meet together and have a chance to discuss their common problems.

It is a safe bet that most of you gentlemen here are members of two or three business associations and that you must realize how much time is wasted in listening to the long and elaborate reports of committees and bureaus,—the Credit Bureau; the Fire Insurance Company; the Arbitration Committee; and so on and so forth.

The larger business associations realize this and print and distribute the deliberations of their committees so that correct action may be taken very quickly at the meetings, at which the problems are discussed, leaving more time to the members to meet together without any set order of business. In this way, they have an opportunity, by friendly association and contact to learn something of their own difficulties and to plan to solve them.

We cannot solve our scientific and our technical problems by formal talks, nor can we device general orders of business that will help to solve them. Our chemists work on their several problems, and, from time to time, come together to learn what progress has been made, and, in the end, the chemists and the engineers and the executive heads, familiar with all the problems and their solutions, together use their best intelligence to elaborate a successful working unit.

At the meeting of the American Institute of Chemical Engineers last December, I made so bold as to refer to the Gary dinners. We must admit that Judge Gary is an organizing genius and that he has faced the greatest industrial problems of this day when industry together with true progress blend with politics as well as oil and water.

How often have we individually become enraged at some unpleasant little turn in a letter, only to find everything smooth out when, for the first time, we have met the writer thereof, and I recommend to you gentlement, that if you form an association you form one that shall be flexible, and, above all, one that shall bring its members together frequently without too much routine or detail work for them to do. Let small active committees work out the solution of individual problems, but let the members meet often and acquaintanceship ripen into friendship.

You manufacturers here today are telling what is practically virgin soil in this country. To bring about competition and later to eliminate it by agreement in such a virgin field is to do something that is in the first place absurd and in the second place illegal. The powers that be in Washington have stretched the Constitution this way and that until it is now more or less out of shape, but I do not think the day will come when it will be illegal for men in this industry, or any other, to be friendly and to be familiar with their common problems.

The Agricultural Department has placarded the South with the slogan "Diversify your Crops." Is it not obvious that unless the farmers of the South come together, or are helped by some central body, such as the Department of Agriculture, they cannot very well determine just what to grow. They may all stop growing cotton and turn to corn. Then there would be a shortage of cotton and woeful competition in corn. You manufacturers want to "diversify your crops," but you have little or no opportunity of finding out what the other fellow is either making or preparing to make on a large scale. There is no need to elaborate on what happened with Aniline Oil and Phenol and a dozen other products, for you are all familiar with their history in the past three years.

The next most important point for

your consideration, I think, is the matter of the stated objects and the management of the Association. It is obvious that many manufacturers will hesitate to take an active part in the work of an association before they know the definite objects to which the association is commited, and, moreover, just exactly what qualifications are necessary for membership. The stated objects are not so serious, for when all is said and done, associations of this kind are formed for the welfare of the industry as a whole, and, taking it by and large, that simple statement covers the situation.

The matter of membership qualifications is, however, very serious, for I feel that no association should open its doors so wide as to admit to membership men who may plan to use the association for their own ends rather than to use their own knowledge and energy for the welfare of the association, which means the industry. Therefore, I think the most important of all the preliminary steps is the choice of the Committee that will bring about the formal organization of the association, and, at the same time, determine qualifications for membership, and, further, I feel that such a Committee should be a large and representative one.

I cannot express to you gentlemen the intense and personal interest I take in this development. Among my earliest recollections are some of the evidences of the failure of the British Dyestuff industry. Sir William Henry Perkin's first patent, which was entitled, "Dyeing Fabrics" was dated August 26, 1856. Perkins plant was erected at Greenwood Green in London and not long afterwards a plant was erected at Marsh Gate Lane, Stratford, London, E., by Evans, Kant & Co. These people at that time had the most up-to-date method for the manufacture of Rosaniline. They went along successfully for some time and then failed, and my father bought the property and used it for his own particular manufactures. In the Evans Kant Rosaniline process the oxidation was brought about by Arsenic Acid. The Aniline and Arsenic Acid were introduced together into a U shaped boiler and the mass was agitated mechanically while it was heated. One of these boilers produced in eight hours about a ton of magenta melt. In the last stages of the process lime was used to take up the arsenic and they obtained as a by-product very large quantities of arsenite of lime, very strongly colored with magenta, and when I first saw that plant at the tender age of seven or thereabouts there was literally a hill of this material which spread a strong red liquor over the factory whenever it rained, and as you all know, it rains in England most of the time; and the first lesson I had of the utilization of waste products was what my father did with that hill which stood just about where he wanted to place some furnaces. He took some of the material, washed it, levigated it, dried it and powdered it and sent samples to Prof. Riley in Washington and to Prof. Bessey in Ames, Ia., as a possible insecticide for use against the cotton crop in the South. The reports from Washington and Ames were so encouraging that my farther made his first trip to this country in 1878. Prof. Bessey suggested to him as Paris Green was Green, this material, being purple, and produced in London, should be called London Purple, and so it was named. I referred to the old books recently and found that long before the hill was demolished it had produced in profits an amount considerably in excess of what was paid for the entire property.

I do not want you to think that today my sole interest in the industry is a fond hope that some mountains of valuable by-products will be forthcoming, for my benefit; for, as a matter of fact, my thoughts lie in one direction only, which is that American, French and English genius, intelligence, industry and energy should be enabled, by proper organization and adequate governmental co-operation to reach the success they deserve. No one can deny that the work already done and the results already obtained in this country are simply marvellous. There are made here today many of the most difficult pharmaceutical products, that three years ago we were told could never be made in this country. But the work is "spotty." The heads of the British Dyestuff companies feel that under the most favorable circumstances possible it will be ten years at least before the perfection of organization developed by the German companies can be approached. Therefore, I repeat that to attempt at this early stage too much in the nature of detailed organization for an association is to invite disaster, and to create greater confusion than already exists. It will be like attempting to install an elaborate cost accounting system (and I speak feelingly and from experience) in a brand new industry, that has yet to produce its first commercial batch.

Finally, there is the all important matter before you of a fair and helpful governmental attitude, and, in this connection, let me read you six lines from an editorial on "Science and Industry" which appeared in the "Manchester Guardian" on June 30, 1917.

> "From ill-formed public opinion one cannot expect right minded public action. Any community that holds itself apart from the general body and is content to deplore the existing state of things without a vigorous effort to alter it is bound to suffer when public action comes to be taken."

Those lines to my mind are all sufficient and justify you gentlemen in forming an active association. If you go ahead I pray you may succeed, and in any event I feel that we are, all of us, the work he has done and for the great greatly indebted to Mr. McKerrow for constructive effort he has made.

The personality of Mr. Heminway made a decided impression upon all and when he called upon Mr. Kaye, there was evident a spirit of good fellowship that was indeed pleasing. Address of Mr. Kaye follows:

Mr. Kaye, Consulting Lawyer of Convention.

Mr. Hemingway has in a measure explained why I am here, but briefly the problem of association work is one that is aways interesting to me. When Mr. Hemingway called me up and asked me if I could give a little time to the gentlemen who were interested in forming the association and I came up and attended the meetings, I heard the same line of complaints which I had heard in the other industries. There was the same talk of trade jealousies, mutual distrust. We had the same thing in the leather industry, we had the same degree, the same thing in the disinfectant industry and yet a short time after the association was formed all those things were swept aside. One of the gentlemen at the meetings I attended last week scoffed at association work and said there was not many associations going anyhow. I have before me a report of the Department of Commerce on Commercial Organization, published in 1915, which gives five hundred national organizations, aside from state associations and local associations. They cover practically every branch of industry with the exception of the dyestuff industry. I do not want to take time to summarize these associations because I take it for granted that by your attendance you are interested in association work.

I have an illustration that may have some weight with you. When we formed the Disinfectant Association, we found a very strong distrust among a few of our Western people against the West Disinfecting Company. That is a very able organization with a well-established laboratory and well committed to the doctrine of the standardization of disinfectants. Some of our members took me aside and warned me against the West people. One of our members, after one year, who had been most outspoken against the West people, came and asked me if I would seat him next to Mr. —— of the West Disinfecting Co. It was a case of two men who had had an opportunity in that year of sizing each other up and finding out what each other stood for and finally realizing that by standing together they were doing each other the most good and not harm.

If you come together you are going to find the same spirit in your entire industry and as Mr. Hemingway has said, great good will be accomplished by coming together and seeing and knowing each other and realizing that you are all members of a large fraternity and that while each man is determined to make his way in his business, he can best do that by co-operative effort with other men in the same industry.

When the dyestuff matter was put before me I began to realize that of all the industries in this country, the one that stood most in need of associated effort was the dyestuff industry. Not merely because it is a new organization, just starting, but because of the things which you will have to meet. Of course, prominent in all our minds is the idea of German competition of the most potent type. Organized not merely in brains but organized in government control and in activity and just as no single nation could stand up against Germany in the present war, no single manufacturer is going to stand up against German competition in the war for trade supremacy. They are too well organized, for that you must organize to meet them. Their propaganda work is not only carefully planned, remarkably backed both financially and by brains, but also insidious in its workings. We know that they have practically government backing and government control, and an extraordinary system. I was very much surprised when I picked up Dr. Norton's book on the Dyestuff census to find that there are six leading German companies and seven smaller German companies. But there was an organization and I am informed by Mr. McKerrow that there are already today in this country something like 130 manufacturers of dyestuffs. On the fact of it how is the disorganized effort of 130 concerns going to meet the organized effort of thirteen huge, active and well-established concerns? Then again you have the competition of the other nations, England, Switzerland, Sweden, Italy, Japan, all of them making a strong effort to get their hands into the dyestuff industry. It is only by associated effort that you are going to accomplish the saving of your industry, not merely by the interchange of thought, but by government protection. No single concern in this country can go down to Washington and have proper legislation passed to protect this industry. Apart from the difficulty of obtaining government support when it is suggested by one concern, you have the constant distrust at Washington that some individual concern is planning something for its own benefit and even if you gentlemen were not aware of an effort being made some Congressman or Senator will ascertain that a bill has been passed and backed by a certain concern and immediately everything is in confusion. But go to Washington as an association representing the entire industry, you receive the most courteous attention, a fair hearing and usually you accomplished your result.

In the Disinfectant Association we received word that a bill had been railroaded through the Connecticut legislature providing for the putting of a final coefficient number on all disinfectants. That is one of the steps towards standardization of disinfectants. Three years ago the members of the Association were opposed to that standardization, today they are in favor of it but realize the difficulties of establishing a definite standard. The bill as passed was very badly drawn. We were not opposed to the establishment of a final coefficient law in Connecticut, we were opposed to putting a statute upon the books which would demoralize the industry. I got in touch with the sponsor for the bill and arranged to meet him. We met on the train; he, the man who proposed the bill, and my-

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A. P. Howes, Vice President
Elisha Hewitt, Secretary and Treasurer

Myron Drew Reeser, Managing Editor

Do you want to be informed each week of the latest developments in the dyestuff industry?

In our ~~issue~~ of January 14th we called the attention of readers of the Reporter to the fact that circulation up to the present time had been entirely free but gave warning that in the near future we should approach our friends with the request that they become paid subscribers.

We are accordingly preparing subscription bills which will be mailed during the coming week to all those who have been receiving the Reporter during the past four months free of charge. Subscriptions received in response to this request will be entered on our books as of March 1, 1918.

There is, of course, no obligation upon anyone to pay the $3.00 covered by the subscription bill, but we are anxious to ascertain which of our readers really consider the Reporter of value, and which do not so esteem it. We would, therefore, earnestly request that upon receipt of subscription bill you do one of three things, either return same to us with your check for $3.00, or advise us that we may consider the subscription in force—remittance to follow at a later date—or that you return the invoice with request that you wish the Reporter discontinued. In this way it will be possible for us to utilize those copies which are not wanted by their present recipients for circulation work in other quarters.

We have endeavored in every way possible to live up to the principles which we enunciated in our initial issue. We are constantly becoming more impressed with the fact that the need for a paper such as the Reporter is real and we hope as time goes on, to make the magazine an organ of genuine service to the trade at large. We earnestly trust that our request for subscriptions will be met in the general spirit of cooperation which we believe dominates the dyestuff industry at the present time.

Mr. Kaye, Consulting Lawyer of Convention.

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self. We took a compartment on the train and by the time we reached Hartford we had re-drafted the bill for him, with the result that though the bill had already passed both houses, the bill was withdrawn and the bill which had been drawn by us was passed in its place. And today, while I realize it is not a perfect bill it certainly covers the point infinitely better than the original bill.

The same thing will apply to you with the dyestuff industry on the legislative end. If it is a question of tariff changes, if it is a question of getting the government to see how closely you are allied with the munition industry, you will get a hearing as a body and not as an individual. I pointed out to the gentlemen of the committee that we must proceed very slowly, that it lay not in the power of a few men meeting last week, or in your power, to in a quick and arbitrary manner to adopt a form of arbitration or a definite plane of propaganda work. An association is formed very much in the manner of the formation of the United States of America. There were a lot of colonies and they got together in 1776 and declared their independence, and then in 1776 until February, 1781, these Articles of Confederation were first discussed and then gradually submitted to the various colonies for adoption. The Constitution of the United States was not adopted until 1787. You must do about the same thing here. You are meeting not to declare your independence but your inter-dependence. Every man is privileged to get up and explain what his company does, and we want him to do it. The views of all the gentlemen present taken together and read over will form the body of thought upon which your organization committee will be enabled to work. I suggested to the meeting last week that your procedure should be a similar one to that of any other organization. At the meeting today, if possible before the close of your morning session, have your Chairman appoint an organized committee, which committee to be limited to merely making out a statement of the purposes of your organization and a general plan of procedure. Then have your committee empowered to act as an organization committee only until your first annual meeting and by first annual meeting I do not mean a meeting a year from now but a meeting two or three months from now. During that interim your committee will be empowered to entertain and pass upon applications for membership. It will be in a position to consider the various topics of by-laws, etc., the question of classification of membership, dues, propositions for propaganda work, etc. And I also suggest that the Chairman of the Organization Committee arrange for a series of committees selected from the manufacturers, on the various topics which have been discussed and will be discussed, such as registration of dyestuffs, standardization, arbitration of disputes, patent law, trade revision, propaganda work, and each one devoted to its own topics and in the interval between this meeting and your first annual meeting, can lay the data upon which it may render a comprehensive and intelligent report. Upon the reports so rendered you can establish what will amount to your constitution, the principles for which the association will definitely stand.

These are practically the only suggestions I want to lay before you. I desire if you have an organization committee appointed to have the opportunity of meeting with and advising them and give them the benefit of whatever experience I have had.

I just want to leave you one thought. No manufacturer in this country, especially in this industry, is big enough to dominate the United States in its legislative policy, is big enough to dominate this industry, but if you keep on going ahead in your line, this organization, as 130 concerns can do what one man not knowing what the other is doing, each man going to countries fertile in propaganda work, as soon as the war is over and your real competition commences, one by one you are going back to the wall. This is the time for you to form your association and not wait until the enemy is within your borders. We have learned our lesson in preparedness and having learned that lesson, I suggest that we prepare now.

There was some discussion upon certain points that were brought out by Mr. Kaye but this was of little importance until Mr. L. A. Ault of Ault & Wiborg, Cincinnati, Ohio, arose and made the following suggestion:

> "I suggest that each member present arise and state to those present his name, his connection with his company and just what line his company is engaged in; whether his company is engaged in the actual manufacture of dyestuffs or whether they are dealers only."

This suggestion was acted upon and the business cards of all present were collected and as the chairman read them, the representative or representatives of the company arose and gave his or their names as requested.

While this was in progress, it was noted that Mr. Ault was, or seemed to be, in a state of unrest and, judging from his next remarks, this was the case. He arose and said:

> "Mr. Chairman, I was led to suppose that this was to be a meeting of manufacturers who had met with the purpose of establishing an association for American Dyestuff Manufacturers and not an association for manufacturers *and* dealers."

Mr. Bradford Webster, a dealer in dyestuffs, then arose and demanded of Mr. Ault the definition of an actual manufacturer. Mr. Webster said:

> "Why am I not an actual manufacturer when I maintain a laboratory for the assembling and mixing of certain colors to meet the demand of individual companies?"

Mr. Ault contended that this practise did not make a man an actual manufacturer and a heated argument was in progress when the chairman called the house to order and suggested that the question be put to a vote.

This was done and it was finally agreed that the actual manufacturers remain in the room and the dealers retire. Before this took place a committee composed of three manufacturers and three dealers was chosen to meet together and talk over a workable plan. While this committee was in session some brief addresses were delivered and suggestions exchanged.

Adjournment for luncheon was then proposed and it was understood that early in the afternoon session the committee of manufacturers and dealers then in session would make a report..

The afternoon session opened with an attendance of over two hundred and the report of the committee was given. Briefly summarized, the plan called for the formation of an association composed of two bodies (manufacturers and dealers); the manufacturers to compose Section A, and the dealers Section B. It is to be understood that both sections are to work for and co-operate in furthering the success of the association.

An address by Dr. J. Merritt Matthews was delivered and many interesting points were brought out. Dr. Wallace Pierce of the United States Conditioning and Testing Company delivered an address on the most important subject of the day, that of standardization. Dr. Pierce's remarks were as follows:

Address of E. W. Pierce, Chief Chemist, U. S. Conditioning and Testing Company

While the majority of events which have culminated in this convention have had their inception since the beginning of the war, this question of testing and standardization goes back to the very origin of coal tar dyestuffs. It is now over twenty years since I first began testing, classifying and attempting to standardize dyes, and with your permission will try to outline the difficulties and possibilities, in order to see whether we cannot, at this time, take steps to adopt some uniform system that will, at the same time, be acceptable to both consumer and producer.

Before the war all my work was done in the interest of a branch office of what was then, and is now, the largest American dyestuff factory. No one who had not been through the ordeal could picture the difficulties of holding out against the German competition of those days, but it can be readily understood that business was only possible by being able to supply goods of as high quality and rendering as efficient service as our foreign competitors. The standards of those days were set by the large German factories and it is said that there was between them a free interchange of type samples in order to maintain a certain uniformity in shade and strength of dyes made in the various plants. These standards were created arbitrarily, as we see in the case of such dyes as Rhodamine-B, which was only 20% of its full strength; Chrysophenine which was 40%; Chinoline yellow 20%; Auramine II 33⅓% of Auramine O, which in turn was 75% less than the pure dye. The list might be prolonged to great length but the facts are generally known.

Now it is not only permissible, but an actual necessity, for a factory to have a type for commercial purposes which is somewhat below its best possible production; otherwise, it would be burdened with large quantities of dye below standard, because no factory, no matter how high its efficiency, can turn out every lot perfect. This point will always be insisted upon by the manufacturers and conceded by the consumers. A second class arises in cases where the factory batch is not simply below strength but is off shade and requires some other dye to be added to bring it to type shade. A third class is deficient in brilliancy or solubility and can never be made right by mixing other colors with it. These manufacturing problems are the cause of all the arguments concerning standardization. Of course we must consider deliberate adulterations and substitutes but as these are so easy to detect they constitute no real problem.

Every factory worthy of the name maintains its testing department and is fully aware of the deficiences in each lot of dye produced. Corrections are made and the lot brought up to the factory standard, if possible. Extra strong batches are mixed with weak ones and different off-shades are mixed to correct each other, outside colors only being added when there is no other remedy.

The methods of testing dyes are generally known to chemists who have specialized in such work but, unfortunately, there has been no definite rule and each operator uses whatever methods he deems best. In the case of comparison of two samples of identically the same dye we may use a colorimetric method. In all such tests equal quantities of the dyes are dissolved in equal quantities of water and the relative depths of color of the solutions measured either in Nessler jars or cylinders, or more accurately in a colorimeter of the Campbell-Hurley type, and for very exact work in the Kobel colorimeter. Whether the two samples are identical in composition or not can be determined quickly and accurately by observation through a small direct-vision spectroscope and the identity of any other additions established by consulting the tables compiled by Formanek. If the two dyes are not of absolutely the same nature the colorimetric test is of no value and we must depend on comparative dye tests. In the comparative dye test it is always essential that both dyes be applied in their proper manner under exactly the same conditions. Slight differences of time, strength of both, temperature, etc., have great influence on the value of the test. Samples dyed at different times are never to be considered as comparative. While the colorimetric methods are accurate within 2% or less, the comparative dyeing is not effective for differences of less than 5%. This is due principally to the inability of the eye to distinguish on dyed fabrics as closely as in the instruments.

The means of testing for mixtures and the material used for reduction are simple operations and by the use of the microscope can be made to give dependable results. The methods of testing for fastness to different influences are more varied and while the U. S. Government has specifications for dyed materials there needs to be an American series of tests that will be uniform. The ultra violet lamp has been extensively used for tests for fastness to light, but at present we need a scale of fastness that will mean more than the terms used at present—one that will express in hours or days how long any given percentage of dye will resist. This can be done, and whether this Association endorses such work or not, it will be carried on independently.

Standardization is one of the burning questions before this meeting. On it hinges the question of whether certain producers will join or stay out. There seems to be a slight misconception of the meaning of the word. A recent article by Mr. McKerrow spoke of the standardization of the names of colors so we would have a rigid arbitrary shade to represent each fancy color and a universal use of such standards. This very thing has been most admirably covered by the Textile Color Card Association and while most useful and commendable, is an entirely different problem from the one before us.

A standard is not an ideal—it is a unit or system of measurement. Before the war, the German factories had standards of their own making and today we can have American standards of our own making. We already know how to measure and appraise these goods. We want every manufacturer to make for himself a type or standard of each of his dyes and put these on record, as it were, by depositing samples in the hands of a dependable custodian. From these samples portions can be issued to those interested in testing and the manufacturer will obligate himself to make deliveries equal to the type he himself established. Probably when several factories are making the same dye it will be possible to bring about between them a uniform standard which will really be a great convenience to those you must seek to please—your customers. This will work no hardship nor restriction on anyone, except on the manufacturer who delivers second-grade goods when he has agreed to furnish first-grade. No honest manufacturer has anything to fear from such supervision, and further, if it is not done voluntarily by this Association, it will be done by other and more critical authorities.

The Bureau of Standards, at the instigation of the Federal Trade Commission, is at work along such lines at the present time. The institution I have the honor to represent—the United States Conditioning and Testing Company—is doing this work now in the interest of consumer, dealer, exporter or whoever desires to know the truth. Our success has been partly due to the fact that on account of such long association with the selling end of the dye business there is not that danger of my taking the narrow-minded view that characterizes the reformer or purely scientific investigator. Your troubles are known and your critics and competitors are known, so that our efforts are always toward effecting a better understanding rather than fostering a controversy.

These things are quite possible under your own supervision and thereby you can forestall the more severe supervision of Washington. The assistance of the United States Conditioning and Testing Company is offered you and the only obstacle that can be foreseen is the disinclination of certain manufacturers to obligate themselves to make uniform deliveries. This is a measure of preparedness, for the competition is to follow the war. Before the war the Germans set the pace for us to follow—let us set up a standard of our own and insist on clean open business methods and defeat their efforts to get this business away from us again.

There was much open discussion, and Mr. A. Brooking Davis, of Ault & Wiborg Company, raised the question as to what standards should be adopted for determining the standard of dyestuffs. He suggested that a standard that can be duplicated should be adopted. The start should be made with a pure intermediate to which should be coupled pure bases, until the resultant substances became a chemical individual. He said that it was possible to establish a chemically pure laboratory standard of every shade of color. He pointed out that the Germans utilized a system of standardization of which 90% was known chemically pure type. Mr. Bradford Webster said that he had gone over the patents on vat colors in the patent room in Washington and that patents on vat blue had run out though new patents had been taken out for this and other colors between 1905 and 1910. The patents taken out between these dates would run out between 1922 and 1927.

It was pointed out by Mr. L. A. Ault that lithol, a base for dye production, was selling here at 24c before the war, while the foreign valuation of the same product was less than 8c a pound.

In the course of the afternoon an interesting address was delivered by Mr. Bradford Webster on the subject, Patent Laws. Mr. Webster's summarized remarks were as follows:

Address of Bradford Webster, an Attorney Who Has Specialized in Trade Arbitration

In an emergency industry, where both the production and the merchandising of dyestuffs have been in such a state of swift evolution, it is natural that all kinds of disputes should have arisen. It is also natural that unscrupulous men should have taken advantage of the situation to the limit. With the lack of adaptability of the courts, and with the profession of law one hundred years or more behind the profession of business, it is natural that the settlement of disputes in the courts, civil and criminal, should have proven a failure. With rules of evidence not suited to the occasion, no reparation or punishment could be secured at all in cases where practical men in the business knew to a certainty what fraud had been committed and exactly how it had been committed.

So it has been apparent for a long time that a powerful Board of Arbitration, composed of men knowing the business both from a practical and from a technical standpoint, was greatly to be desired in the dyestuff business. If the organizing effort of our friend Mr. H. Gardner McKerrow, accomplishes nothing else than the establishment of a powerful and effective Board of Arbitration for the dispensing of swift and certain justice in dyestuff disputes, it will surely have been well spent and deserving of the gratitude of everyone.

Such a Board should be composed of three men. If each of them had had legal, manufacturing and merchandising experience, with the necessary breadth of vision, fairness and practical good sense, he would have ideal qualifications. In the absence of such universal qualifications in each, each should have as many as possible, and a well-balanced display of all them should appear in the Board.

Such a Board enforces its decrees by the power of publicity and discrimination against those who refuse obedience. It should also add to the force of its decrees by rendering them only where the parties have agreed that the decree should be enforcable in a Court of Law exactly like a prior judgement in a Court of Justice. Any party to a dispute regarding dyestuffs should have the right to bring such dispute before the Board, and the same discrimination should be shown against any party refusing to arbitrate as should be shown against a party refusing to abide by a decree.

The Chairman then announced that an important communication would be made to the convention on Wednesday morning by Dr. Grinnell Jones of the United States Tariff Commission, which would vitally bear upon the dyestuff industry. Adjournment was then suggested until 11 a. m., Wednesday. Owing to Mr. Heminway's absence, Mr. David W. Jayne of the Barrett Company, occupied the chair. At 11:35 Wednesday morning, Dr. Jones delivered the following vitally important address:

Address of Dr. Grinnell Jones, of the Staff of the U. S. Tariff Commission

It is not necessary before this audience to discuss the history of the tariff law of September 8, 1916, which raised the duty on dyes and other coal tar products. I shal merey remind you that the legislation creating the United States Tariff Commission forms a part of this same bill. This law charges the Tariff Commission with the duty of gathering the facts needed for the consideration of questions of tariff policy and requires that all information at its command shall be put at the disposal of the President and Congress, whenever requested. The commission recognizes that the dyestuff industry presents one of the most important and complex problems which it will have to consider, and is planning to make a report to Congress on this industry.

Last August the Commission sent a questionnaire to many of the leading textile mills asking for a statement in regard to the effect of the dyestuff shortage of 1915 on their business and the extent to which their needs have been met by the growth of the American dyestuff industry. These consumers were also asked to give certain statistical information bearing on the question and to state their opinion in regard to the wisest policy for the country to adopt on the question of the tariff on dyes. Returns have been received from 77 textile manufacturers, and a summarized statement of the replies will be published very soon. The commission is now seeking information from the manufacturers of dyes, intermediates, and other coal tar products.

The Underwood tariff law levied an

import duty of 30 per cent ad valorem on dyes, except indigo, alizarin, and dyes derived from anthracene and carbazol, which were on the free list. The act of September 5, 1916 placed an additional duty of 5 cents per pound on the dyes formerly dutiable at 30 per cent ad valorem and imposed a duty of 30 per cent upon the dyes formerly on the free list. By the same act coal tar crudes were put on the free list and intermediates were made dutiable at 15 per cent plus 2½ cents per pound. These specified duties of 5 cents in the case of dyes and certain other finished products, and 2½ cents in the case of intermediates, were called special duties. The law further provides that these special duties shall remain in force only 5 years, and that they shall thereafter be gradually reduced by one-fifth annually. The law, however, contains another provision, which reads as follows: " . . . . But if, at the expiration of five years from the date of passage of this Act, the President finds that there is not being manufactured or produced within the United States, as much as sixty per centum in value of the domestic consumption of the articles mentioned in Groups II and III (intermediates and finished products) of section five hundred, he shall by proclamation so declare, whereupon the special duties imposed by this section on such articles shall no longer be assessed, levied, or collected."

The President of the United States has requested the Tariff Commission to ascertain the facts on which executive action under this clause must be based. It has seemed wise not to wait for the expiration of the five year period before beginning a systematic study of the development and progress of this industry in the United States.

The schedule which has recently been sent to all manufacturers known to us is designed to ascertain the facts needed for the application of the 60 per cent clause, as well as to secure certain other information which will be helpful to the commission and Congress in determining the wisest future policy. The commission is taking a census of the coal tar products for the year 1917, asking for the quantity and value of the production of each intermediate, dye, or other finished product.

It is, of course, well known in a general way to those familiar with the dye industry that the development of indigo, alizarin, and the vat dyes derived from anthraquinone and carbazol has not kept pace with the development of the azo dyes. Since these branches of the industry are the very important ones which under the present law do not get the benefit of the special duty of 5 cents, it is of great importance that the commission have for the consideration of Congress definite statistical information in regard to the development of the different branches of the industry. For this and other reasons we are asking for detailed information in regard to the production of each separate dye, not simply for grand totals. We hope to publish the totals in as great detail as can be done without revealing the operations of individual concerns. For example, in the cases of aniline and Bismarck brown there will be so many producers that the total production for the country can be published without revealing the operations of any individual concern. It is believed that this information will be of interest and value not only to Congress but to the producers themselves. In many other cases the publication of the totals would reveal the operations of individual concerns. In all such cases the dye or intermediate in question will be grouped with others of a similar character so as to cover effectually the details. In the case of dyes sold under a trade name, whose chemical nature is kept as a trade secret, we are asking that you give us confidentially sufficient information in broad, general terms, such as will enable us to classify properly each such dye. It is especially important that we be able to distinguish clearly between dyes dutiable at 30 per cent plus 5 cents per pound and those dutiable at 30 per cent only.

You will notice that under the present law it is necessary to ascertain both production and consumption of dyes in the United States. It would be impossible to secure complete returns from consumers themselves. It therefore becomes necessary to regard the consumption in the United States as equivalent to the sales of American manufacturers plus imports minus exports. Although the law requires a comparison of the value of the domestic consumption and production, we are asking for the quantity also as a check on the values and because the quantity is for many purposes a better indication of the growth of the industry than the value.

One of the difficulties which we foresee is the lack of a generally accepted standard of quality and strength for dyes. If as a result of the deliberations of this association a generally recognized standard is adopted, the future work of the commission will be greatly facilitated.

We appreciate that it will not be easy to bring together the information called for on the schedule but rely with confidence on the co-operation of the industry toward enabling the commission and Congress to deal intelligently with an important public question. Although we have sought and secured the helpful co-operation of a number of representative manufacturers both large and small in the preparation of this schedule, we realize that it is capable of improvement. We ask you to do the best you can to supply the information in the form called for this year. We shall welcome constructive criticism which will help us to prepare a better schedule for later use. In making suggestions a clear distinction should be drawn between changes which can be made under the present law and changes which would require an amendment to the law.

The work which the commission is doing on the special law of September 8, 1916, is not confined to the questionnaire just described. We are also considering very carefully the possibility of improving the law by amendments.

For example, the new act does not repeal all of the provisions of the old law which are in conflict with the intent of the new law. The list of intermediates mentioned by name is capable of much improvement. Such important intermediates as Michlar's ketone and dinitrophenol are not mentioned, whereas the relatively much less important nitrotoluylenediamin and monochlorphtalic acid are included. Very little attention appears to have been paid to intermediates for medicinals or photographic chemicals or flavors. Many suggestions have been made to the commission in regard to changes in the wording of the law. We have prepared a list of such of these suggestions as seem worthy of serious consideration. We will send a copy of this list to anyone who cares to offer evidence or opinion in regard to the advisability of the proposed changes and will welcome any additional suggestions.

The commission will be glad to arrange for a conference with representatives of the dye industry in the near future. If such a conference appears to be desirable.

The morning was devoted to discussions with Mr. Jones on the subject of tariff. This discussion was lead by Mr. A. Brooking Davis, of Ault & Wiborg Company. He suggested that the term intermediate be defined more fully and also that the law should be amended so as to fix the number of chemical steps taken in manufacturing intermediates so that if the product was further altered it would cease to be an intermediate. Dr. Jones replied that this plan had already been put forward and that the term intermediate had been carefully defined in the law and a list of well known intermediates mentioned.

Dr. Chas. H. Hurty then remarked: "I had a conversation a few days ago, with the owner of a large mill in North Carolina. There was formerly a certain group in this country, typified by manufacturers in North Carolina, responsible for a certain exemption in the tariff bill. This mill owner said: 'I understand we are going to give the American dyestuff people more of a chance in this Congress. Since the war, and its revelations of German methods, I have made up my mind that I do not want to buy another pound of dyestuffs from them.'

"I would suggest that we prepare ourselves against German ingenuity after the war in shipping dyestuffs into the country as intermediates. I would also suggest that the American dyestuff manufacturers sharpen their pencils and think up ways of 'shooting holes in the present tariff law' in order to prevent this practise."

"There is one administrative phase of this tariff law which has not been touched upon," said R. W. Cornelison, president of the Peerless Color Company. "I would like to call to the attention of the Tariff Commission the fact that there are some very interesting figures on dye importation in the Bureau of Commerce. I remember one dye of which I used many tons. It was called Naphthol green B. It sold at 45c a pound. Some people paid as high as 65c a pound. By buying in large quantities I paid 25c a pound. The price at which it was declared was much lower. If you go down the list I think you will find gross undervaluation. If this was done before the war, what will prevent this same gross undervaluation after the war?"

"To put it mildly," said E. S. Alton, "the patent situation as a whole is of no account. The Germans have simply worked out certain formulas. The United States Patent Office has about 98,000 patents. We can invent as well as the Germans. It has been established that a certain color can be invented today. Our chemists have been busy manufacturing; they did not have time to do any inventing. They will, as time goes on, put their minds to the task and in that manner we can do just what the Germans did. Another point is that if the Government wills it, they can limit German patents in this country to a certain period."

At this point Mr. Killheffer arose and stated that he had formerly been chief chemist for one of the old line German dye companies, was quite familiar with their methods and therefore urged that the chemists adopt Dr. Hurty's suggestion to think up ways to have the tariff law amended so as to prevent the bringing in of products as intermediates which could quickly be changed to dyes. Mr. Killheffer also said that there was frequently some "joker" in the patents obtained by foreigners which prevented their being worked after they expired.

(Continued in the next issue)

Owing to the limitation of space this report of the Convention will also appear in our issue of February the fourth. A list of those who were present will be given together with the complete address of Mr. McKerrow.

It is Mr. McKerrow's wish that there be less publicity directed to himself and more to the activities and successes of the convention.

Mr. McKerrow has worked faithfully for the success of the association and not for personal glory.

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